Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. XIV. NEW YORK, MAY 14, 1859. NO. 36.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY
At No. 37 Park-row (Park Building), New York,
BY MUNN & CO.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Responsible Agents may also be found in all the principal cities and towns of the United States.

Single copies of the paper are on sale at the office of publication, and at all the periodical stores in this city Brooklyn and Jersey City.

Sampson Low, Son & Co., the American Booksellers, 47 Ludgate Hill, London, Eng., are the British Agents to receive subscriptions for the SCIENTIFIC AMERICAN.

TERMS—Two Dollars per annum.—One Dollar in advance, and the remainder in six months.

☞ See Prospectus on last page. No Traveling Agents employe .

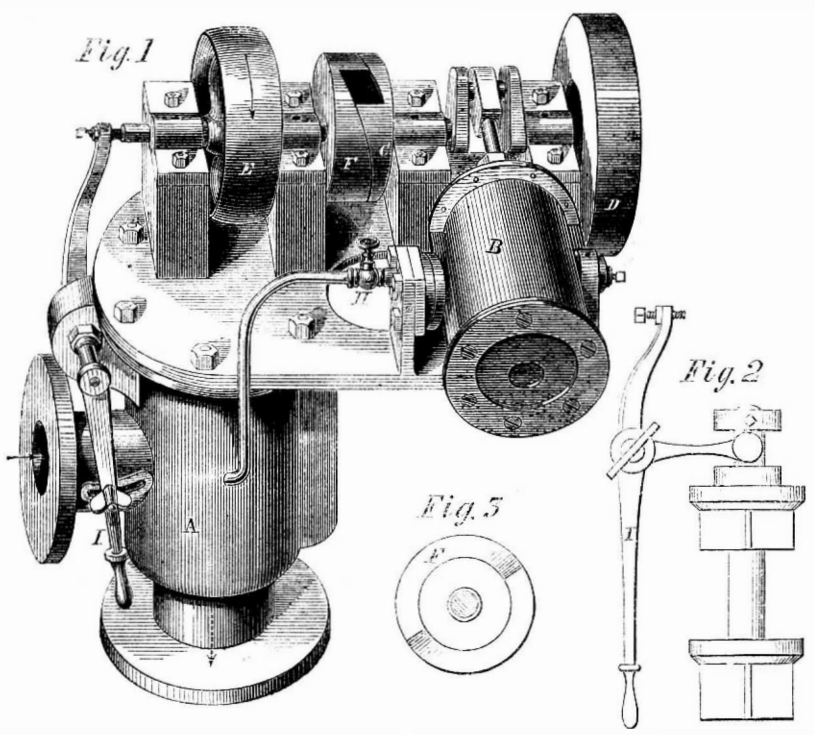
The Od Force.

This is the name given by Professor Reichenbach, of Germany, to "an extremely subtile fluid, emitted from the magnet," &c., and which Judge Edmonds, of this city—and other spiritualists, we suppose—hold to be an agent for communication between spirits and "persons in the body." Judge Edmonds says: "I have myself beheld it issuing from both ends of a magnet, and forcing itself out like a pale, shadowy smoke from under its armature. I have also seen it issue from the human head and fingers. On one occasion I saw it so plainly that, in a dark room, I saw my own hand in the light which issued from the head of the person who stood at my side." By giving old things new names, the ignorant may be puzzled and the weak-minded muddled. This, we think, has been done by Reichenbach in substituting the term "*od* force" for "electrical current," which is nothing less, we are confident, than the pale, shadowy smoke which Judge Edmonds beheld. There are currents of electricity continually flowing through and around almost all bodies—metallic, vegetable and animal—and the human body is highly electric. An electric current flowing from the human body can be made visible in any moderately dark room in which machinery is driven by a broad leather band, moving at a high velocity. In such a situation, if the forefinger is held up under the belt, near to the surface, a stream of light, like the electric brush, will be seen flowing upwards from it towards the belt. This is the "*od* force" of the German sage—the old electric current of scientific men, who make no pretensions to new discoveries from old things by giving them *odd* names.

Important Decision Relating to Sewing Machines.

A recent decision made in the Court of Queen's Bench, London, makes those essential parts of sewing-machines, viz., the eye pointed needle and shuttle, public property. It seems that in December, 1846, Mr. Thomas obtained an English patent, in which the needle and shuttle were claimed, and that in 1857 he instituted proceedings against several parties for importing American sewing-machines, especially those of Grover & Baker. In one instance he obtained a verdict, but the case having been carried up to another court, his patent has been declared invalid, because he claimed that which was patented by Fisher & Gibbons, Dec. 7, 1844. These patentees invented a machine for embroidering cloth in which they employed eye-pointed needles combined with shuttles or loopers. This old patent expired last December in England, and it never was secured in this country.

SERGEANT'S GOVERNOR FOR STEAM-ENGINES.



An examination having been made of this invention by the Chief Engineers of the U. S. Navy, and who conclude their report with these words: "It can be applied to any engine where any governer can, and we think it better adapted for marine engines than any other with which we are acquainted;" it needs no recommendation of ours to call public attention to it.

Fig. 1 is a perspective view of the contrivance, Fig. 2 a view of the balance valve and rod, and Fig. 3 a front view of one of the regulating disks.

A is the valve chamber, into which the steam enters from the boiler, as shown by the arrow, and passes to the engine in the direction of the dotted arrow. To the valve chamber are attached levers for working the valves, one a hand lever, the other worked by the governor. B is the cylinder of a common oscillating engine which is placed on the top of the valve and supplied with steam from it, between the valves by a small pipe, and the piston of B being connected with a crank drives a balance wheel, D, and circular wedge, C, both of which are prevented from lateral motion in their bearings. E is a pulley driven in the direction of the arrow upon it, by a belt from the engine to be governed. It has journals cast to it and drives the circular wedge, F, by a shaft and feather passing through its journals, thereby allowing a free movement of the shaft in its bearing, no matter what the strain of the belt is. H is a small valve and pipe for regulating the speed of the little engine.

The operation is easily understood. Steam is admitted into the engine by operating the lever, I, and the large engine starts; then by turning steam on to the regulator engine, and setting it at the desired speed the two wedges, C and F, rotate together, so long as their speed is exactly the same (about four revolutions to the large engine's one), but the moment the load is thrown off the large engine, a change of position of the circular wedges takes place instantly, and the feathered shaft of F presses on the lever at its end, operating the valve instantly, thus keeping the engine running at the same velocity; when the load is again thrown on, the reverse operation takes place.

An experiment was made with this governor by Park, McCurdy & Co., of Pittsburg, Pa., and they give the following report: "Our steam-engine is about 628 horse power. The irregularity of resistance in rolling is about equal to 200 horse power. The diameter of the steam pipe is 10 inches. The balance-wheel weighs 15 tuns, and our power is used in rolling copper into sheets from 4 to 1200 pounds weight. We have great satisfaction with the operation of the governor, and believe there is no other one so well adapted to regulate steam power, it being very sensitive to any change in speed and correcting it at once. We would not be without your governor upon our engine for twenty times its cost. Any further information we can give you we will do cheerfully."

For simplicity of action and detail and perfection of principle, it is seldom that we have the pleasure of describing anything that equals this governor, which was invented by Henry C. Sergeant, of Columbus, Ohio. It was patented in this country, December 21, 1858, and is also patented in England and France.

The inventor will be happy to furnish any further information upon being addressed as above.

A Thought or Two on Poison.

The existence of an organized government which makes and enforces a system of laws indicates, in some measure, the civilization of the nation; and that sailor's exclamation, when wrecked and cast upon an unknown shore, as his eyes beheld a gallows, "Thank God, I am in a civilized country!" has not only satire but truth in it, for the gallows was emblematical of a code of laws.

The most valuable possession of a State is, undoubtedly, its inhabitants, and the first and most especial care of the government should therefore be the individual lives of the citizens. Every barrier that law and the executive can place around each human life should be so placed, and murder more prevented than it is. Let us see how this is *not* done in the city of New York. During the year 1858 the number of persons poisoned by accident was 20, the number who chose to "shuffle off their mortal coil" and commit suicide by this means was 35, and the murders by poison, 1; showing a total of 56 persons who were permitted by the law (that should have prevented it) to murder themselves, or be killed by designing persons whom the law almost furnished with the means to put their hellish schemes in practice.

When we say the law does this, we mean that it might prevent much of it but, does not, and hence the citizens themselves are responsible for not having some prohibitory measures taken to prevent the present reckless sale of poisons. Any person can go into a druggist's store and purchase arsenic, laudanum, oxalic acid, or a little strychnine; and there are very few druggists who would take the trouble even to enquire into the purposes for which it was designed to be used, but would supply the poison without a single question or the slightest hesitation. This can, we believe, be prevented in some measure by compelling the druggist not to sell a poison to any one without taking a receipt from the purchaser, signed by two witnesses, each party giving their full name and address; and also by ordering each druggist to keep the deleterious articles of his trade in a separate part of the store, and in bottles with a distinguishing label, as is now done in France. There is a law in this State which compels the word "poison" to be written or printed on every package containing such a compound or simple, but it is virtually a dead letter. Death by poison surely comes under the head of preventible diseases; and as it is one of the most flagrant, it should be at once attacked, for it is rapidly growing on this continent. If any ambitious legislator wants a hobby, here is one that he may ride with safety to himself and benefit to the community.

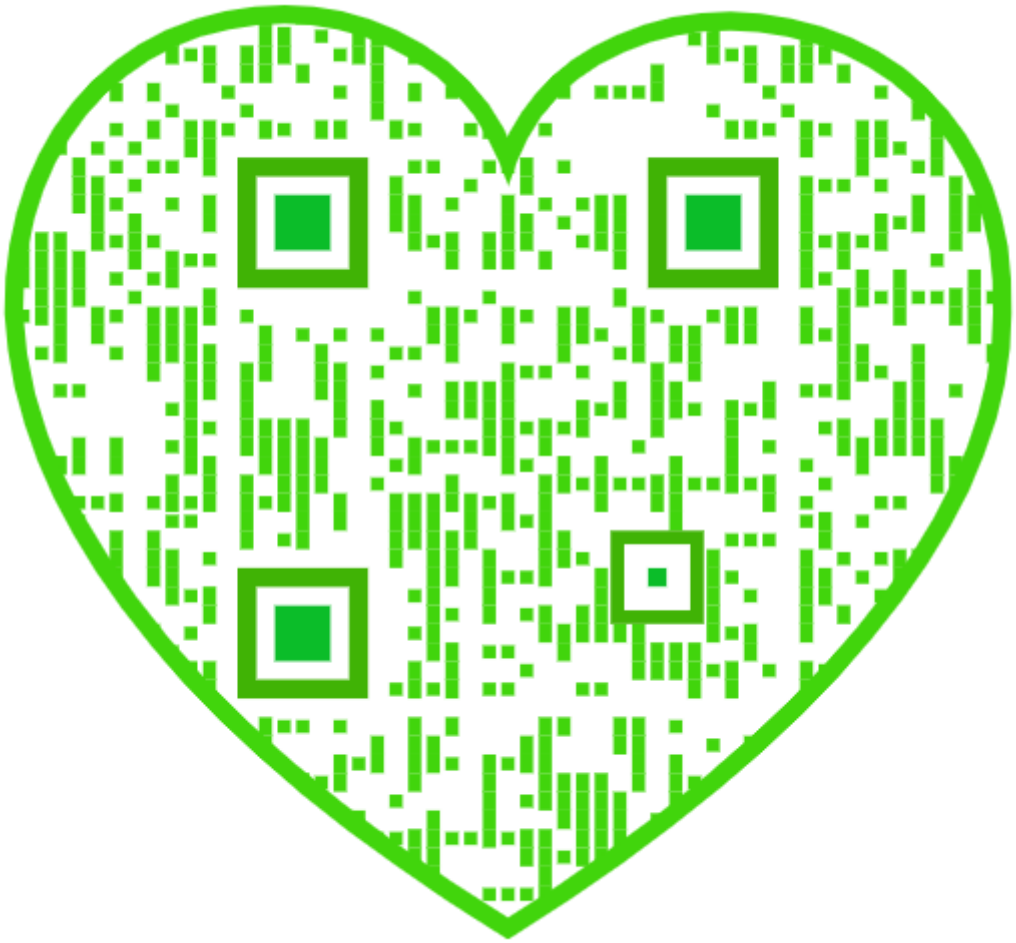
Laws for Sportsmen.

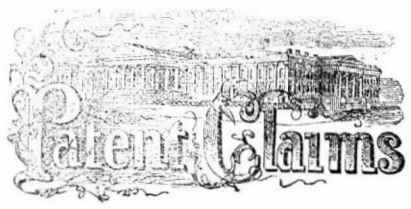
A law passed at the last session of the New York Legislature provides that no person in this State shall kill any wild deer, partridge, quail, woodcock, or snipe at any time during the months of February, March, April, May, June, and July, under penalty of $25 for each offence. In the same statute it is forbidden to take brook-trout with nets, seines, weirs, baskets, spears, or grapples in any of the inland waters (Cayuga, Seneca and Otsego lakes excepted), between Sept. 15th and Feb. 15th under a penalty of $25 for each offense. City sportsmen who go to the country will do well to remember the existance of this law.

Sturgeon's Flesh Pugnacious.

This distinguished fish, according to the Washington correspondent of the Charleston (S. C.) *Mercury*, must be excellent for the feeding of soldiers and others distinguished for pugnacious qualities. He says: "It is a remarkable fact, though not noticed by Cuvier, Buffon, or any of the other fathers amongst the naturalists, that sturgeon's flesh when eaten in sufficient quantities creates a very elevated condition in the consumer, and moreover imparts to him a most courageous spirit, and a disposition to be quarrelsome and fierce. This peculiarity is noticeable among the fisherman along the Potomac every spring."

© 1859 SCIENTIFIC AMERICAN, INC.





Issued from the United States Patent Office
FOR THE WEEK ENDI G MAY 3, 1859.

[*Reported officially for the Scientific American.*]

*** Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

MANUFACTURE OF WHITE LEAD—Fanning Albert, of Brooklyn, N. Y.: I claim the application of a rotating self-feeding cylinder for the drying of wet carbonate of lead, substantially in the manner described,

ALARM WATER GAGE—W. R. Andrews and John Oswald, of Chicago, Ill.: We claim the disk valve, E, its stem, B, and spring, I, applied in combination with the enclosing sockets, F and G, the latter of which contains an annular passage, d, communicating with a whistle, the whole being arrauged and operating as set forth.

[The steam passages are arranged in a novel way in combiuation with a steam-whistle and a valve attached to the index-spindle of a float, which rests upon the surface of the water in a steam-boiler, for the purpose of sounding an alarm when the water in the boiler gets below or above certain levels. A spring is applied, in combination with the spindle of the float and index, to prevent any solid matter between the valve and seat when there is no pressure of steam in the boiler. There is also an escape-cock in the steam-passages for letting off the water of condensation therefrom.]

FAUCETS—Silas Barker, of Hartford, Conn.: I claim the vertical discharging orifice, A, as herein described, and the concave end cut-off to the face slide, E, in the manner and for the purpose substantially as set forth.

ELEVATORS—Albert Betteley, of Boston, Mass. : I claim. first, The combination of the air reservoir with the movable car or platform of an elevator.

Second, Constructing the base of the car, c, in the parachute form, for the purpose set forth.

DOOR SPRING—Amos S. Blake, of Waterbury, Conn.: I claim the arrangement and combination of the spring, D, hooks, e, and arms, A B, as and for the purpose shown and described.

[The object of this invention is to obtain a very simple form of door spring that will so far operate as to exert its greatest strength when the door is closed and to gradually decrease in strength as the door is opened, so that the door may be opened without unnecessary exertion and retained in a fully open state, and the spring at the same time retain sufficient strength to close the door when it is slightly moved, so as to form an obtuse angle with the door frame or possess sufficient strength to close the door if it be not fully thrown

MANUFACTURE OF WATCH CASES—James Boss, of Philadelphia, Pa.: I do not claim as new the process of plating metal, as described, for I am aware that has been done before.

But I claim, first, Spinning-up of watch cases by the employment of a mandrel and spinning wheels, constructed to operate in the manner substantially as set forth.

Second, Spun plated sheet metal watch cases, constructed as specified.

FASTENING FOR CURTAINS OF CARRIAGES, &C.—William Z. W. Chapman, of New York City: I claim a curtain knob fastening, constructed and arranged substantially as set forth, so as to be readily opened from the base or on either side of the curtain, as described.

SKATE FASTENING—Chandler Cheney, of Milford, Mass.: I claim securing the back part of the skate to the boot or shoe by means of the spring band in connection with the screws, or their equivalents, when constructed and operating in the manner and for the purposes substantially as set forth and described.

SEWING MACHINES—D. W. Clark, of Bridgeport. Conn.: I claim as my invention, and as an improvement on my patent of Aug. 31, 1858, the combination and arrangement of mechanism, as described, for the purpose of controlling the feed wheel, in the manner set forth.

WATER CASK LIFE-BOAT—William N. Clark, of Chester, Conn.: I claim, first, Making the staves upon the lower side of the water cask more curved than those are upon the upper side, in order to give the life-boat a proper bearing and greater stability in the water, substantially as described.

Second, I claim the ballast floor, G, water-tank and hatch, when they are used in connection with the water cask and life-boat, substantially as set forth.

SMOKE STACK FOR LOCOMOTIVE ENGINE HOUSES—Henry Clayton, of Tamaqua, Pa.: I do not broadly claim the invention of telescope pipes for carrying off the gases arising from stoves, &c

But I claim the arrangement and combination with the smoke pipes of locomotive engines of a sliding tube, b, flue, D, and stack, C, substantially as and for the purpose shown and described.

[A series of flues communicate with a common stack at the center of the building, the flues being provided each with a sliding or adjustable cap and tube, so arranged that each cap may be lowered over the top of the smoke pipe of a locomotive to convey the smoke therefrom into the stack, the tubes of the caps acting as valves as well as means of communication with the stack, so that when the caps are raised the flue of each elevated cap will be cut off below with the external air and thereby prevented from injuring the draught of any of the flues in use.]

SKATE FASTENING—John H. Coe and William B. Sniffen, of Stratford, Conn.: We claim, first, The employment of the curved adjustable slotted bars, E F, at the front of the foot or base plate, A, combined, arranged and adjusted in relation to each other, and secured together and to the said base or foot-plate, A, in position to correspond with the length of the foot and form of the front part of the same, substantially in the manner and for the purpose described.

Second, We claim the combination of the right and left screw, K, and the clamps, H, with the heel part of the skate frame, so that both clamps are simultaneously moved, substantially as shown and described.

Third, We claim the combination of a hinged handle, L, with the screw which operates the clamps, so that after the skate is fastened to the foot the handle may be folded out of the way of the ice, as shown and described.

[This skate is readily and securely attached to the foot without leather straps, as is usual.]

BOMB LANCE—Paschel B. Comins, of San Francisco, Cal.: I claim the employment of wings formed of a flexible material in connection with metal springs, as described, when so arranged as to be folded on the cylinder (for containing the powder) between the head and wad, in the manner and for the purposes set forth.

APPARATUS FOR GENERATING GAS—Mathias P. Coons, of Brooklyn, N. Y.: I do not claim the use of a perforated diaphragm as a means of purifying gas, nor the connection of said diaphragm to a retort except when the same is combined as set forth.

But I claim the form and mode of arrangement of the retorts, as specified, for the purpose of combining a series of gas-generating retorts, as combined, for extending or diminishing its capacity of generating gas indefinitely, in the manner specified.

I also claim the combination of a diaphragm surrounding a condensing chamber and escape-pipe, the whole arranged and operated as set forth and described.

COOKING STOVES—Joseph Cox, of Philadelphia, Pa.: I am aware that external air has been brought into the fire-chamber to aid combustion, and therefore do not claim that as the scope of my invention.

But I claim the chamber, f, above the top oven plate, communicating with the external air and fire-chamber, substantially as described, whereby there is effected the double function of aiding combustion and equalizing the temperature of the upper portion of the oven.

VARIABLE CUT-OFF FOR STEAM-ENGINES—Alexander Crumbie and Russell D. Briggs, of Brooklyn, N. Y.: We do not claim any portion of the device patented by N. T. Green, March 13, 1855.

But we claim the arrangement and combination of the toggle-rods, D D', slide, E, rockers, C C', stems, A, and lifters, a a', substantially as and for the purpose shown and described.

[This invention consists in a certain arrangement of rocking toes, sliding lifters, and toggle-like tripping bars, whereby the induction or cut-off valves (one for each end of the cylinder) are opened at the proper time and let go and permitted to close at such different points in the stroke of the piston as may be desirable to permit the stroke to be completed by the expansive force of the steam in the cylinder.]

TOBACCO PRESS—Edward Cunningham and William B. Cunningham, of Powhatan Court-House, Va.: We do not, of course, intend to be understood as limiting ourselves to any particular method of operating our improved hand presses.

But we claim producing an improved hand press which is especially calculated to aid in compressing bunches of leaf tobacco into the proper shape for packing or "prizing," the said press being composed of a narrow open box which has a fulcrum-piece and a false bottom combined therewith and a removable lever adapted thereto, substantitliy as set forth.

LAMPS—Michael A. Dietz, of Brooklyn, N. Y.: I do not claim, generally, the use of the deflector in the chimney band, or connecting them to the other part by means of a hinge.

But I claim securing or connecting the deflector, B, to and into the chimney band, A, by means of a groove, C, substantially as and for the uses and purposes set forth and described.

LOCK FOR PIANOFORTES—P. F. Dodge, of West Cambridge, Mass.: I claim actuating the bolt by means of the arm, E, of the tumbler, B, and the recess, D, in the bolt, A.

PIANOFORTES—Spencer B. Driggs, of New York City: I claim so arranging and applying the sound board and strings, and so constructing and applying the bridge or bridges of a pianoforte, that the depths of the bridge or bridges at the bearing points of the several strings, and the distances of the several strings from the board, are all in the same proportion, or thereabouts to the length of string, as described

[The sound board and strings are so arranged and applied, and the bridge or bridges are so constructed, that the depths of the bridge at the bearing points of the several strings, and the distances of the several strings from the board, are all in the same proportion, or thereabouts, to the lengths of their respective vibrating portions.]

MACHINE FOR FILING GIN SAWS—James W. Elliott, of Prattville, Ala.: I do not claim making the table, X, adjustable at one end only.

But I claim, first, Making said table adjustable at both ends substantially as set forth.

Second, I claim the standard, A, with the adjustable post, A', and slotted bar, B, for supporting the cylinder of saws, substantially as described.

Third, I claim making the way, H, adjustable, both perpendicularly and laterally, for bringing the frame, I, to any desired position, substantially as described,

Fourth, I claim the use of the clamp screw, N, in combination with the way, H, for holding the frame, I, in position, as set forth.

Fifth, I claim a pawl, f, held in place by the coiled spring, g, and operated by the connecting rod, b, rock shaft, h, and levers or arms, c and d, for rotating the saws, substantially as set forth.

Sixth, I claim the friction plates, k, for holding and moving the saws, said plates being arranged and operated, substantially as described.

Seventh, I claim the adjustability of the guides, W, for the purpose of pressing the files more or less against the saws at pleasure, as set forth.

FORMING CURVED ELECTROTYPE PLATES—William H. Elliott, of Plattsburg, N. Y.: I make no claim to the broad principle of forcing the back of a flexible impression sheet against a cylindrical form for the purpose of giving it the required shape.

But I claim, first, The employment of ledges, i, in combination with the form, A, for the purpose of holding a compound flexible impression sheet or type matrix in the required form, with or without screws, R, as specified.

Second, The employment of curved edges, B', in combination with the form, A, when said edges are so arranged in relation to said form that the edges of the compound impression sheet shall be held firmly between them for the purpose of holding said impression sheet or type matrix in a cylindrical form, as set forth.

Third, The employment of air escapes, F, in combination with form, A, box, B, and the flexible impression sheet, C, so as to provide for the escape of air from between the said impression sheet and form, as and for the purpose specified.

Fourth, The combination and arrangement of the concave form, A, with the adjustable wires, D, for the purpose of holding the impression sheet in contact with the concave side of said form, as and for the purpose set forth.

Fifth, The employment of a curved impression sheet of sufficient elasticity that it may be straightened out while the matrix is being formed by the type, and then spring up again by its own power to the form required, in combination with the curved form, A, when used for the construction of a curved type matrix, as and for the purpose specified.

SHINGLE MACHINE—Wm. Kirkpatrick, of Lancaster, Pa. : I make no claim to any of the devices embraced in A. V. B. Orr's patent of July 8, 1856, as originating with me.

But I claim, first, The added plate, A 2 constructed as described, and when acting in combination with the wrought-iron piece, D d, and spring, S, substantially as described.

Second, I claim the guide piece, c c c c, as arranged and for the purpose specified.

Third, I claim the combination of the rod, O, with thr pieces, g g, and a a, by means of which the frow is enabled to accommodate itself to the winding grain of the timber, as already specified.

HANDLE FOR CUTLERY—J. W. Gardner, of Shelburne Falls, Mass. : I claim attaching the handle, D, to the knife or other implements or tool by means of a tang, C, provided with a cylindrical projection, E, and bolsters, B, the tang and projections being fitted in a longitudinal kerf or cut and hole in the handle, the bolster bearing on the end thereof, and the tang secured in the handle by a rivet, a, substantially as described.

[The object of this invention is to attach the handle to the implement in such a manner that a firm and permanent connection is obtained, and possessing all the advantages of the usual modes of attachment, without any of their disadvantages, and at the same time admitting of the handle being adjusted and secured to the knife with far greater facility than usual. The invention is assigned to Lamson Goodnow & Co., of this city.

MACHINE FOR CLEANING GRAIN—T. G. Gleasen, of Rochester, N. Y.: I claim the arrangement of the screens, I and K, vibrating longitudinally with the fan, G, removable apron, M, and detachable smut cleaner, T, the whole made to operate in conjunction, as specified, for the purposes set forth.

VALVE GEAR FOR STEAM ENGINES—Thos. Hawkins, of Mobile, Ala. : I claim the combination of the bearing and suspending plates, one on the toe and the other on the lifter, with a self-acting (or pendulum) catch for the purpose of holding open the steam valve to any desired point of the stroke, substantially as described.

WHEELWRIGHTS' MACHINE—T. L. Hawkins, of Sturgeon, Mo. : I claim the arrangement of the several parts, substantially as described for the purpose set forth.

LADIES' HOOP SKIRTS—John Holmes, of Boston, Mass. ; I claim, first, Constructing a skirt of "knotted" or "network," and this I claim whether the meshes on the front and back of the skirt are alike or not.

Second, Enlarging the rear upper portion of a skirt, formed by a series of meshes, to form the bishop shape, by increasing the relative size or number of meshes on the rear upper portion thereof, as compared with those in the same course on the front of the skirt, substantially as described.

Third, The horizontal bustle-supporting spring, E, in combination with the compressing tape, g, and the upper part of the skirt, as shown and described, and for the purposes set forth.

Fourth, The combination of the "netted skirt," with the hoops, e e e, spring, E, compressing tape, g, and waistband, A, substantially as shown and described.

HAIR CRIMPER—Ellwood Ivins, of Waterbury, Conn.: I claim, as an improved article of manufacture, a hair crimp, composed of a fork, A, and clasp, B or C, made as shown and described.

[An engraving of this appears on another page.]

EGG BEATER—S. F. Jones, of St. Paul, Ind. : I do not claim, broadly, the driving of an egg-whip by a cord.

But I claim, as an improved article of manufacture, an egg-beater, having a cup, B, shaft, C, strap, a, tube, e, slotted bar, D, cords, g h, attached to shaft, C, and to adjusting screws in bar, D, and otherwise made as shown and described.

[This invention consists in having a shaft provided with suitable beaters fitted in a cup, and a slotted bar applied to it, the whole being arranged in such a way that the shaft and necessary operating parts may be kept in proper connection and readily applied to and removed from the vessel to facilitate the placing of eggs in the vessel, and their removal therefrom.]

SKATES—Uriel Josephs, of Quincy, Mass. : I claim, first, The combination of the braces or struts, B B', with the plates, C C', either with or without the screw, D, substantially as and for the purposes set forth.

Second, The combination of the bar. F, with the runner, substantially as described and for the purposes set forth.

MEASURING FAUCETS—Ira Kinman, of Freeport, Ill. : I claim, first, The employment of an endless screw or its equivalent, in combination with the rotating slide, F, eccentric chamber, E, all arranged and operating in manner and for the purposes substantially as set forth.

Second, I claim the register wheel, P, and index hand, i, in combination with the stop, S, when the same is operated by the stem of the endless screw, A, so as to indicate the quantity of liquor drawn through the faucet, substantially as described.

[By this faucet liquors can be measured as they are drawn, and the quantity indicated. It is especially adapted to molasses, oil or other liquids of a similar nature.]

WINDLASS—David Knowton, of Camden. Me. : I claim the winch shaft, G, provided with barrels, J J, and connected to the windlass by gears as described, and so arranged that the windlass may be worked by the winch shaft, or the winch shaft and barrels may be worked independent of the windlass, substantially as and for the purpose described.

STEAM BOILERS—L. Lefebre, of Donaldsonville, La. : I do not claim the corrugation of boiler plates, broadly considered.

But I claim the longitudinally fluted boiler, braced as described, in combination with the conformable under surface of the exterior flue, B', substantially as and for the purpose set forth.

PUMPS—A. W. Lloyd, of Otis, Mass. : I claim the arrangement and combination of the side tube, F, pipe, D, valve, E, and piston, G, as and for the purpose shown and described.

[By this pump a continuous stream is thrown from the eduction pipe, the object of the invention being to simplify the construction of such pumps, and to render them less liable to get out of repair. It consists in the use of a hollow piston, provided with a valve and fitted within a proper cylinder, an air-chamber being connected with the cylinder, and also a side water-passage, all arranged to effect the desired end.]

GRINDING MILLS—J. C. Lyons, of Auburn, N. Y., and H. F. Philips, of Seneca Falls, N. Y, : We claim the described arrangement and combination of the grinding cone, F, and the corn cracker, J, when the former is arranged on a shaft, C, which receives a longitudinal motion by means of a hand-wheel, D, and from which motion is conveyed to the corn-cracker by means of wheels, k and l, substantially in the manner and for the purpose specified.

[This is an excellent grinding mill.]

HARVESTING MACHINE—Henry Marcellus, of Amsterdam, N. Y. : I do not claim a finger-bar of angular form, nor angular clearing edges upon a finger-bar. such features having been before employed.

But I claim the corrugated finger-bar cast with the cutting projections, c, in combination with the detachable fingers, B, constructed and applied in the manner and for the purpose specified.

[This invention consists in a novel construction of the finger-bar and fingers, whereby the manufacture of them is greatly facilitated and rendered far more perfect than usual, and the fingers are capable of being readily detached and attached to the finger-bar, so that in case of the breaking or bending of any tooth, it may be readily detached, and a new one adjusted to its place by any person of ordinary ability or ingenuity.]

ROTARY ENGINE—Charles Miller, of Belleville, Ill. : I claim a patent for all the parts specified in combination, being and constituting a rotary steam engine, as asked for in my petition herewith presented.

LOCOMOTIVE MACHINE FOR PROPELLING PLOWS, &C. —Wm. P. Miller, of Marysville, Cal. : I claim the combination of the endless chain or track, with the leading and driving wheels, C C, and supporting trucks, E E, the whole constructed and operated substantially as and for the purposes set forth in said specification.

MODE OF ATTACHING HARNESS BREECHING TO WAGON THILLS—Aaron Parker, of Coventry, N. Y. : I claim the mode of attaching the hold-back straps to thills of vehicles, by having a metal ring to slide under a spring snap, in such manner that it will unfasten of itself when the traces are unhitched, as set forth.

VULCANIZING CAOUTCHOUC—D. D. Parmelee, of New York City : I claim, first, The method described of treating caoutchouc, gutta percha and their compounds, for the purposes set forth, by employing agents, in an aeriform or gaseous state combined with a solvent in a liquid state.

Second, In combination with a solution prepared in the manner specified to operate on caoutchouc, gutta percha, or their compounds, as set set forth I claim preparing the said caoutchouc, gutta percha, or their compounds by blending or incorporating therewith sulphur, substantially as described.

Third, I claim dissolving sulphur in the proportions set forth, or thereabouts, in the solution prepared as specified, when the same is used in combination with rubber, gutta percha, or their compounds, previously free from sulphur.

CEMENTS—Nelson Parmeter, of Gardner, Mass. : I claim an improved fireproof cement, composed of said ingredients in the proportions and in the manner substantially as set forth.

WRENCH FOR GAS FITTERS—G. P. Phillips, of Albany, N. Y.: I claim the jaw, D, arranged to slide substantially as described, so as to wedge, gripe or tighten and hold the article to be turned as described.

I claim the nut, K, arranged to slide freely on the bar, A, and so that it may be locked to the bar, when desired, in combination with the bar, when both are constructed substantially as described.

And in combination with the nut, K, I claim the tightening nut, I, arranged substantially as described.

ADJUSTABLE PILE DRIVER—Thos. Place, of Alfred Center, N. Y. : I claim, first, Attaching the frame," A, to the axles, a c, by means of the bolt, b, and rack plate B, and guides, e', to admit the lateral adjustment of the monkey guides, C C', substantially as described.

Second, Screwing the monkey guides, C C'. in the frame, A, by means of the universal joint. h, and the sliding joint, i, arranged with the lever, D, and rack catch, l, or their equivalents, to admit of the lateral inclining of the guides, as well as the forward and backward movement of the same, for the purpose set forth.

Third, The combination of the frame, A, and guides, C C, when constructed and arrangod to operate conjointly and to admit of the adjustment, as described.

Fourth, The arrangement of the button or stop, k', levers, J H I, and catch, j', substantially as shown for automatically releasing the shaft, a, from the windlass, G, as and for the purpose set forth.

[The object of this invention is to obtain a device that may be moved or conveyed from place to place with great facility, and made to conform to the inequalities of the surface of the ground, so that the ways or monkey guides may always be in a vertic position when the machine is used, and also adjuste so as to be readily applied to its work, and operated with great facility. Half the invention is assigned to W. M. Saunders, of the same place.]

LATCH HINGES—John Plant, of Washington, D. C.: I claim the hinges, a b, when provided with projections c c, and latch, g, and when constructed and operating in the manner and for the purposes substantially as set forth.

COTTON PRESSES—H. W. Randle, of Burnsville, Ala.: I do not claim a spirally grooved shaft, without longitudinal motion for taking up the cord; but I claim the vertical screw-shaft, W, as described, in combination with the levers, L L', cords, D D' D", and the follower, substantially as and for the purposes set forth.

REVOLVING FIREARMS—Joseph Rider, of Newark, Ohio: I claim, first, The cocking-dog, E, with its notches, c d, applied in combination with the hammer and trigger and with a stationary stop, e, to operate substantially as set forth, to effect the cocking of the hammer and firing.

Second, In combination with the above, providing the same cocking-dog, with a notch, f, in its extremity to be operated upon by a tooth, g, on the trigger, substantially as described, to operate the piece entirely by the trigger for rapidly repeated firing without cocking.

Third, Combining the locking lever, G, with the cocking-dog, E, by means of a tooth, l, upon the lever, and a tooth, h, upon the dog, the tooth being formed to operate substantially as specified.

Fourth, The construction and application of the trigger-guard in combination with the locking levers, to save three purposes, viz.: as the guard, as the lever for operating the rammer, and as the spring for operating the locking lever or its equivalent, substantially as described.

[This invention relates to that class of revolver which is in most common use, viz., that having a fixed barrel and a chambered cylinder rotating on an axis parallel with the bore of the barrel. The invention consists in a novel construction and mode of applying and combining the several parts of the lock of a revolver, whereby they are made capable of operation in a very effective and certain manner, either by the trigger alone for very rapid firing, or by the cocking of the hammer and firing only by the trigger for firing more deliberately and with more accurate aim. It also consists in so constructing the trigger-guard as to serve as a spring for operating the device which locks the cylinder during the act of firing, as a lever for operating the rammer, and as a spring for locking itself in place as the trigger-guard.

CIDER-MILLS—Joseph Rosencrans, of Avoca, N. Y.: I claim, first, The arrangement of the cutting-cylinder and the tearing cylinder within the hopper, the one acting upon a plane and the other upon a curved surface, and the tearing cylinder so geared as to have rapid rotation as regards the rotation of the cutting cylinder.

Second, I claim the arrangement of the grinding cylinders and pressing cylinders with the endless apron, chute and hopper, when they are geared as set forth.

MAIL BAGS—Washington Ruddach, of Baltimore, Md.: I claim the arrangement in the manner and for the purpose hereinbefore specified, of the jointed plates, B C, staples, D, jointed slide, F, with projection, F', when applied to bags with riveted and stitched seams.

PUNCHING AND STAMPING PRESS—Stephen P. Ruggles, of Boston, Mass.: I claim so combining in a press for punching, stamping, etc., a coarse and fine threaded screw, with the power that drives the press, as that the coarse screw may be in action when speed or motion is required, and the fine screw when power is required; the former ceasing it action and the latter coming into action according to the resistance against the punch or die substantially as described.

© 1859 SCIENTIFIC AMERICAN, INC.

CORN AND COB CUTTER—Samuel B. Shinn, of Philadelphia, Pa.: I claim the peculiar construction of the cutter-head, A, as specified with or without the combination of the knives, B, and crushers, C, arranged and operating in the manner and for the purpose set forth and specified.

WASHING MACHINE—Olloff Shostrom, of Altona, Ill.: I claim the combination and arrangement of slats, c; levers, D, serrated plates, F, with rods, b, false bottom, G, endless apron, 5, lever, 3, and pawl, 4, the several parts being constructed and operated substantially in the manner and for the purpose set forth.

COFFEE ROASTERS—Jonathan P. Simmons, of Baldwinsville, N. Y.: I claim the combination of the revolving ring with the spherical case, constructed, arranged, and operating substantially as specified.

SPINNING FLYERS—D. F. Smith, of Manchester, N. H.: I claim the construction of the arm and stem of the compressor of one piece, and the stop of a separated piece, so applied as to confine the stem in the ears on the flyer-tube as specified.

[This invention consists in a method of applying the compressor to the flyer which brings the arm of the compressor below and directly under the tube of the flyer and thus permits the roping to be brought out from the extremity of the tube directly on the arm instead of with a short bend across the edge of the mouth of the tube as in other flyers, by which means the draft or friction of the roping on the edge is obviated, and the consequent liability of frequent breaking down of the ends of the roping. It further consists in a certain construction of the compressor and method of applying its stop and spring by which some important advantages are obtained.]

HARVESTING MACHINES—Joseph D. Smith, of Lancaster, O.: I claim, first, The arrangement of the mechanism for adjusting the cutting apparatus, consisting of the rack bars, a a, hinged to the cutting apparatus shaft, e, provided with pinions, b b, and ratchet wheel and pawl, c d, when employed in combination with the adjustable wheel, i, in the manner and for the purposes specified.

Second, The employment of the ball journals, m m, of the real shaft in combination with the off-side horizontally turning timber, n, of the reel frame substantially as and for the purposes set forth.

Third, The combination of the secondary standard, q, arranged on the sickle bar, with the hinged laterally adjustable brace, r', in the manner described and for the purpose set forth.

Fourth, The combination with the upward curved edge, f', of the sickle bar, f, of the overhanging upper lip, v, and under back extension flanck, w, of the sickle-guard or tooth, u, in the manner and for the purpose set forth.

Fifth, The spring-catch, z', arranged on the sickle back, y, in combination with the stop-notch, z'', formed in the pitman, z, for the purpose of fastening the sickle or cutter-back, y, to the pitman, z, in the manner set forth.

ROTARY PLANING MACHINES—Wm. H. Smith, of Newport, R. I.: I claim the combination of the rotating cutter-head, C, with the central adjustable bearing-plate, D, arranged substantially as and for the purpose set forth.

[The object of this invention is to adapt that class of planing machines in which the cutters are attached to the periphery of a rotating disk or cutter-head to various kinds of work, so that the same machine may be capable of doing fine or finished work for joinery, and also rendered capable of roughing off heavy, coarse work.]

PORTABLE HORSE POWERS—Geo. W. Swift, of Oxford, Miss.: I claim the arrangement of band-wheel, F, shafts, A and C, idlers D and E, roller, B, and cord or chain, H, the whole constructed and operating substantially as and for the purpose set forth.

MACHINE FOR CUTTING WOODEN CURVED MOLDINGS—Isaac P. Tice of Baltimore, Md.: I claim the adjustable bed formed of the blocks, g, in connection with the flexible guide plate, C, rotary cutter head, F, and the feed and pressure rollers, D E, or their equivalents, substantially as and for the purpose set forth.

[An adjustable bed and a flexible metal guide plate, arranged in connection with a rotary cutter, pressure and feed rollers, are employed in this invention, whereby work forming circles and parts of circles of varying diameter may be cut and beaded for architectural and other purposes very expeditiously, and in a far more perfect manner than can be done by hand.]

SIGNALS FOR FIREMEN—Hezekiah D. Treadwell, of Elmira, N. Y.: I claim the combination of the catch plates, C D, and conical stops, c c c, or their equivalents, on the cords, b b b, working through a series of holes in the catch plates, arranged substantially as set forth.

WATER-WHEELS—Wm. Walker, of Pontiac, Mich.: I do not claim the employment or use of curved buckets, or those having surfaces composed of two planes placed at right angles with each other, for a bucket of such form, or its equivalent, has been previously used.

But I claim, first, The employment or use of the adjustable plates, f, attached to the inner posts of the plates, e, of the buckets G, substantially as and for the purposes set forth.

Second, Providing the buckets, G, with adjustable plates, g, arranged substantially as shown, to prevent injury to the buckets by the entrance into the scroll of hard foreign substances, as described.

[This invention relates to an improvement in horizontal center-discharge water-wheels, and consists, first, in having the front or outer parts of the buckets made movable or adjustable in such a way that in case of stones, sticks or foreign substances of any kind entering the scroll, the buckets will be allowed to yield or give, and be prevented from being broken. The invention consists, secondly, in the employment of a series of adjustable plates or stops applied to the wheel in such a manner that the issues or discharge orifices between the buckets may be enlarged or contracted as circumstances require.]

LAMP SHADES—Charles and Anna C. Wilhelm, of Philadelphia, Pa.: We claim the combination of the metallic shade, A A' A'', with the paper pictures, C' D' E', between sheets of mica, as described.

METALLIC LATHE—Wm. E. Worthen, of New York City: I claim a corrugated pierced sheet of metal, substantially such as specified, either with or without rods or tubes passed through the apertures, substantially in the manner and for the purposes specified.

HARVESTING MACHINES—W. A. Wood, of Hoosick Falls, N. Y.: I claim effecting an oblique delivery of the cut grain from the platform where it falls by a series of carrying belts of different lengths, substantially as described.

MACHINE FOR MAKING PEARL BARLEY—August Wulze, of St. Louis, Mo.: I claim the construction and arrangement of the described machinery, that is to say, the arrangement and combination of the frame or wheel, H, pinions, t and u, and wheel, L, with each other, in the manner described, and with the pulleys, x' x and y y' and A, as set forth.

AIR-ENGINE—Stephen Wilcox, Jr., of Westerly, R. I.: I claim, first, The within described arrangement of the changing cylinder, B, and working cylindar, D, and the valve or valves by which piston, b, is made both to change the air from the cold to the hot end of the cylinder, and to receive a fresh volume of air from the next stroke, with the advantages set forth.

Second, Automatically regulating the temperature of the interior of the heating surfaces by the employment of the parts, H and L, arranged relatively to the heating surfaces of the cylinders, A and B, and to the damper, n, or its equivalent, in the flue, O, as desribed.

Third, Giving the regenerator an increasing area from the cold to the hot side, substantially as and for the purpose set forth.

Fourth, Working the single valve, M, in combination with the two pistons, a and b, as described, so as to thereby accomplish the three-fold purpose of induction, eduction and equilibrium valve, substantially in the manner and with the advantages set forth.

AMALGAMATOR—F. P. Cavanah, of Pioneer Mills, N. C., assignor to himself and R. H. Northrop, of same place, and W. A. McCulloch and E. C. Aiken, of Albany, N. Y.: I claim the arrangement and combination of the elevated quicksilver channels, f g, near the rim of the oscillating amalgamating pan, E, as and for the purpose shown and described.

[This machine is more particularly intended for the washing and amalgamation of gold found in quartz rock, but also applicable to the extraction, by washing and amalgamation, of gold and other metals from various foreign substances with which they may be found incorporated in nature. It consists of a circular pan containing a peculiarly constructed series of concentric channels, arranged to oscillate about a vertical axis, and furnished with a central funnel and distributing cone to cause the pulverized metalliferous matter from which the gold or other metal is to be extracted, to be fed with a suitable amount of water all ronnd the outermost channel, from whence it has to make its way from one to another of the several channels over and among quicksilver, which is contained in certain or all of the channels, to a discharging pipe or orifice at or near the center of the vessel]

CEMENTS FOR ROOFING—Nathan A. Dyar, of Medford, Mass, assignor to himself and Rufus Kendrick, of Cambridge, Mass.: I claim, as a new article of manufacture, the waterproof roof-covering described, the same consisting of a central layer or web of cloth, or its equivalent, covered on both sides with adhering layers of water-proofing, the outward side of one which is covered with a layer of paper fixed thereto by contact with the water-proofing while it is in a warm and plastic state, while upon and embedded in the outward side of the other layer of water-proofing, while in the state just described, is a layer of sand, or its equivalent, forming the uppermost or weather surface of the article.

MECHANISM FOR OPERATING STEAM OR AIR SIGNAL WHISTLES—Moses G. Farmer, of Salem, Mass., assignor to Wm. F. Channing, of Boston, Mass.: I claim the combination of an electro-magnetic escapement with the mechanism described for operating a steam or air whistle, as set forth.

REED ORGANS—Theophile Auguste Rousseau, of Belleville (near Paris), France, assignor to Edouard Alexandre, of Paris, France. Patented in France Jan. 23, 1857: I claim, first, The arrangement of the wind chambers, h, and registers or stops, b, in combination with the reeds, g g, as set forth, whereby each key, a', operates as many valves as there are stops in the instrument, but only those notes are caused to sound where the register, b, is open, as set forth, thus rendering the fingering easy whatever may be the number of stops.

Second, I claim the arrangement of the valves, e e, and knee-pieces, f f, in the manner and for the purposes specified.

Third, I claim the manner specified of arranging the various plans or stories of the instrument, as shown in Fig. 1, and hinging the same together, for affording access to the different parts, as set forth.

VALVES FOR STEAM-ENGINES—Wm. Shepherd, Jr., (assignor to Thos. Holmes and Van Wyck Foster,) of Brooklyn, Eastern District, N. Y.: I do not claim the prevention of the slamming of the valve, without reference to the means by which such result is accomplished; neither do I claim, broadly, the interposition of a steam cushion to check the motion of the valve.

But I claim the combination of the steam ports, f f', with the cover, C, operated by the action of the valve, C, substantially as described for the purpose set forth.

RE-ISSUES.

GAS-BURNERS—John R. O'Neil, of Kingston, N. Y., assignee of Yarnall Bailey, of Philadelphia, Pa. Patented October 12, 1858: I do not claim the employment of heaters or their equivalents for carrying heat from the flame of lamps to the oil or vaporizing fluid therefor for the purpose of generating gas therefrom, but I claim producing a light which may be increased or diminished at pleasure, by means of the adjustable heater, D, or heat receivers l l, operating in connection with a wick tube or holder, B, and the flame of the lamp, or burner substantially as specified, or within the meaning and intention thereof.

KNITTING MACHINES—Nelson P. Aiken, of Troy, N. Y. Patented July 13, 1858: I claim stopping a knitting machine when the yarn accumulates in its needles by the action of the accumulated yarn, substantially as set forth.

SHUTTLES FOR WEAVING CLOTH—James Baldwin, of Nashua, N. H. Patented Jany. 31, 1840—Extended for seven years from and after January 31, 1854: I claim furnishing the shuttle with a spring and catch, so arranged that the bobbin will be received or released at one operation substantially as described.

THE MODE OF CONVERTING THE BACKS OF CAR SEATS INTO BEDS OR LOUNGES—Henry B. Myer, of Buffalo, N. Y. Patented September 19, 1854: I claim, first, The use of the backs of car seats for forming upper horizontal beds or lounges substantially as set forth.

Second, So arranging the backs of contiguous seats that they meet and remain in the same horizontal plane, substantially as and for the purposes set forth.

Third, The use of a cushioned surface intermediate between the cushioned surfaces of two car-seats so as to form with the same horizontal bed, berth or lounge, said intermediate cushion forming an attachment to and appearing as part of the car-seat when not adjusted to aid in forming a berth, bed or lounge, substantially as set forth.

Fourth, Forming a continous line of lower horizontal beds, berths or lounges of a series of car-seats in railroad cars, by uniting the several seats so as to fill up the entire space between the seats with adjustable cushioned attachments of the seats whatever be the character or disposition of said attachments so long as they form and appear as parts of the seats, when not adjusted to form said continuous line of lower beds, berths or lounges, substantially as and for the purposes set forth,

[With this arrangement upper and lower berths are formed of simply the car-seats which are used for sitting purposes during the day. The upper berths are made by turning up the cushioned backs of the seats, and the lower berths are formed by filling up the spaces between the seats with adjustable cushioned adjuncts of the seats, which are hinged to or fitted loosely on the car-seats, and either lifted out off the bottom of the seats or simply turned over from any other position they may occupy, and adjusted into the intermediate spaces between the seats and supported by bolts or otherwise, and thus made to form with the cushioned bottoms of the seats, horizontal berths. This is very simple, convenient and comfortable arrangement, and it or some contrivance similar to it ought to be adopted in every night train in the country for the ease and comfort of the traveling public. A beautiful illustration of this invention will be found in the present volume of the SCIENTIFIC AMERICAN.]

RETORTS FOR DISTILLING OILS FROM COAL—John Nicholson, of Alleghany, Pa. Patented February 15, 1859: I claim, first, The use of a straight or curved or straight blade or blades placed on the agitators or arms, h, of shaft, e, for the purpose of agitating, lifting, mixing and bringing all parts of the mass within the retort in contact with the heat as described and set forth.

Second, The arrangement near the outer edge of one end of a retort, of four or more supply and discharge openings, and on the other end near the outer edge of four or more exit pipes placed on a line with and opposite to the supply and discharge openings as described.

ADDITIONAL IMPROVEMENTS.

JOURNALS OF RAILROAD CARS—William Baker, of Utica, N. Y—Patented August 11, 1857: I claim, first, Placing a cylindrical coiled spring around the piston, immediately above the socket to be used instead of the volute spring below the piston and within the socket as described.

Second, I do not claim generally a ball valve, as this is in common use in various connections, but I claim the use of the ball valve, T, in combination with the enlarged chamber, P, and the arrangement described for communicating and sustaining the oil in contact with the journal.

Third, I claim the use of the flat spring, e, (Figs. 2 and 3,) constructed and arranged as described, to be used for vibrating the piston, together with the arrangement I have described for seating the piston on the spring as set forth.

MANGLES—D. Cumming, Jr., of Mobile, Ala. Patented July 27, 1858: I claim the employment or use of the cylinder, C, having an elliptical surface upon a portion of its periphery, and having a fixed axis of rotation, the cylinders, D, having a movable axis of rotation and the eccentric cams, h, arranged upon a movable rod, and their pressure being regulated by suitable springs, the whole being arranged to operate substantially as and for the purposes set forth

EXTENSIONS.

MACHINE FOR GINNING COTTON AND WOOL—Stephen R. Parkhurst, of New York, N. Y. Patented May 1, 1845: I claim arranging the metallic rings composing the burring cylinder so near together that no burs or seeds, etc., can fall in between them, the rings, e', having hooked teeth cut in the periphery as described, and so placed around the cylinder as not to have the teeth on any two adjoining rings to come opposite to each other, by which the wool or cotton is drawn in below the surface of the rings and the seeds or burs are cleaned off.

Second, I claim the combination of the burring cylinder, e', constructed as above described, with the feeding cylinders, d, and trash cylinder, g, to separate the fibres of cotton or wool from foreign or useless substances.

PRINTING PRESSES—Richard M. Hoe, of New York, N. Y. Patented May 1, 1845: I claim the lifting of the cylinder when it is desired that it should not bear on the form as it revolves, such lifting being effected by means of apparatus connected with the lever, J, arranged and operating substantially as described.

I claim the manner made known of constructing the spring-box or apparatus used by me for checking the momentum of the bed in a cylinder press, but which may be advantageously applied in other machines for a like purpose said spring box or apparatus being furnished with a centre shaft, carrying a toothed wheel that gears into wheels or pinions on several surrounding shafts, the whole of which shafts carry spiral springs arranged and combined as made known so as to co-operate with each other in the manner described.

DESIGNS.

BURIAL CASE—John McMurthry, (assessor to George C. Murthry,) of Fayette, N. Y.

SPOON AND FORK HANDLES—Wm. H. Lewis, of Glastenbury, Conn.

STOVES—Sherman S. Jewitt and Francis H. Root, of Buffalo, N. Y.

INVENTIONS EXAMINED at the Patent Office, and advice given as to the patentability of inventions, before the expense of an application is incurred. This service is carefully performed by Editors of this Journal, through their Branch Office at Washington, for the small fee of $5. A sketch and description of the invention only are wanted to enable them to make the examination. Address MUNN & COMPANY,

No. 37 Park-row, New York.

Activity among Inventors.

As an indication of the active development of genius among our countrymen we would state that during the month of April, there were made through this office alone (exclusive of our branch-offices in Washington and abroad), *one hundred and fifty-seven* applications for patents in the United States, and *ten* in foreign countries.

Out of the number of patents issued from the United States Patent Office, during the same period (April), one hundred and twenty-four of the cases were prepared and conducted through the Scientific American Patent Agency; thus showing, by figures, we are confident, not only that more applications for patents were made through this office during the above month than all the other agencies in the country combined, but also that there never were so many patents issued to the clients of one agency in the same period as were issued to our patrons last month.

It will also be observed that a very large *proportion* of the cases applied for (124 out of 157) were granted; thus showing that inventors are not only exercising their genius, but securing legal title to its products, and that the majority of them apply to the best source to get their rights secured.

Useful Medical Hints.

If a person swallow any poison whatever, or has fallen into convulsions from having overloaded the stomach, an instantaneous remedy, more efficient and applicable in a large number of cases than any half-a-dozen medicines we can now think of, is a teaspoonful of common salt and as much ground mustard, stirred rapidly in a teacup of water, warm or cold, and swallowed instantly. It is scarcely down before it be gins to come up, bringing with it the remaining contents of the stomach; and lest there be any remnant of poison, however, small, let the white of an egg, or a teacupful of strong coffee, be swallowed as soon as the stomach is quiet; because these very common articles nullify a larger number of virulent poisons than any medicines in the shops. In cases of scalding or burning the body, immersing the part in cold water gives entire relief as instantaneously as lightning. Meanwhile get some common dry flour, and apply it an inch or two thick on the injured part the moment it emerges from the water, and keep on sprinkling the flour through anything like a pepper-box cover, so as to put it on evenly. Do nothing else, drink nothing but water, eat nothing, until improvement commences, except some dry bread softened in very weak tea of some kind. Cures of frightful burnings have been performed in this way, as wonderful as they are painless. We once saved the life of an infant which had been inadvertently drugged with laudanum, and which was fast sinking into the sleep which has no awaking, by giving it strong coffee, cleared with the white of an egg, a teaspoonful every five minutes until it ceased to seem drowsy.—*Medical Journal.*

The Speed of News.

The Chicago *Daily Journal* says: "News was received in Chicago, fifteen years ago, in forty days from Europe and two hundred and forty hours from New York; now London advices reach that city in ten days, and news from New York is received here in five minutes." Our cotemporary is a little wrong in the date relating to the period when the passages across the Atlantic were shortened by the establishment of steam navigation, but essentially the improvements which have been made during the past fifteen years, in conveying messages by lightning, and in the rapidity of travel by steamship and railroad, are truly wonderful. In looking back upon the progress made, the changes appear almost like miracles, but they have become so familiar that we esteem them but as small common things. The inventor is the true representative man of this progressive era; yet he does not generally receive due credit for his achievements.

ICE WELLS.—A correspondent of the Boston *Transcript* states that there is a well belonging to A. Twombly, of Brandon, Vt., which was dug, last Fall, through sand and gravel, and when at the depth of 14 feet, a seam of ice, 15 feet thick, was found. At forty feet from the surface a plentiful supply of water was obtained and the well stoned up. Ever since this well was dug, ice has formed in crusts on its sides, and a scale forms every night on the water at 35 feet from the surface.

In a letter received from one of our correspondents, he states that there are several wells of this character in the neighborhood of Brandon, but the puzzle to us respecting this phenomena is as he asserts they only freeze in summer, while they keep open and free from ice all the winter. We are aware that rapid evaporation produces a cooling effect, and that ice may be produced, in some soils, by the quick evaporation of moisture from the surface, but this does not explain why ice forms fifteen feet thick, at sueh a depth under the surface of the ground at Brandon, Vt. The plutonic theory of the earth, which considers its interior a mass of fire, if true as regards all the rest of the world, must be *excepted* for Brandon, at any rate.

© 1859 SCIENTIFIC AMERICAN, INC.

New Inventions.

The Value of Patents.

Mr. L. B. Phelps, of Geneva, Ohio, for whom we obtained a patent on a seed-planter, in writing to us for information upon another subject, incidentally remarks as follows:—"I am selling my patent well. Some counties sell as high as $250. I sold in one month eight hundred dollars' worth of rights," &c. "You may judge," he adds, "that I find some improvement in my business, from working ten hours per day at the bench for $1 50 per day." We congratulate Mr. Phelps on his good fortune, and hope all our clients are equally successful with their patents.

New Steam Fire Engine.

"The steam arm" is becoming a great institution for the extinguishment of fires, and the firemen of the city of Brooklyn seem to be on fire on this subject, as they have obtained several steam fire-engines already, and are about to secure a number more. On the afternoons of Tuesday and Wednesday, last week, we witnessed trials with a new engine built for Good Intent Company, No. 3, of the Eastern District, Brooklyn, by Silsby, Mynderse & Co., of Seneca Falls, N. Y., (Holly's patent), and were much gratified with the operations. From the period when the match was applied until steam was up, only five minutes elapsed, and with a pressure of 45 pounds of steam, it threw a stream 146 feet high out of an inch-and-a-quarter nozzle. On both trials it worked admirably from both hydrant and suction without the least jerking of the machinery. It seemed to give much satisfaction in regard to the rapidity with which the stream was raised, the low pressure at which it operated, and the absence of all jarring in the machinery. Its principle of construction is similar to that of the *Neptune* illustrated on page 73 of Vol. XII of the Scientific American, but the arrangement of the parts are different and superior according to our notion of things.

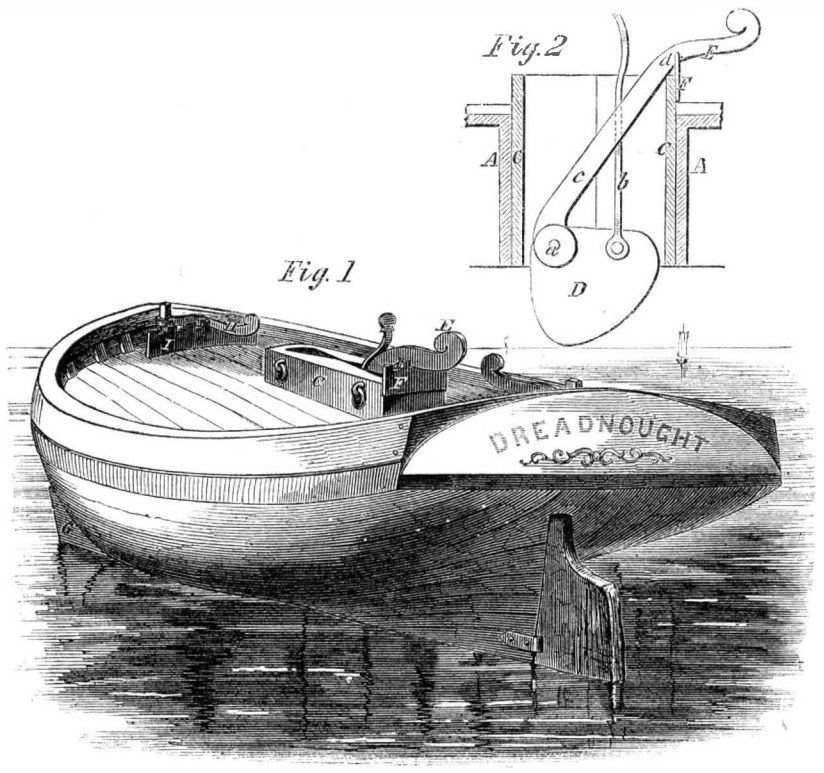
The *J. C. Storms*, a large engine belonging to Lee & Larned, with one of Cary's rotary pumps, came on the ground the first day and threw a very high and powerful stream. It carries about 140 pounds pressure and propels itself.

New Center Board.

When any one who has the feelings common to humanity thinks for a moment of the dreadful accidents that have occurred at sea, the blood feels chill, and a sense of fear creeps o'er the bravest. How many a party has started out for pleasure, and in consequence of sailing too close to the wind, have been brought home lifeless, and how many a gallant vessel has foundered or been capsized while on her voyage to distant climes. Alas, too many. There should not be one. Any invention which tends to give more perfect command over vessels at sea, and render them safer in every respect, should be hailed with delight by the philanthropic and humane. Such a one forms the subject of our illustration, invented by an ancient mariner, Noah Pratt, of Nicholson, Pa., who himself has thrice been cast away, and once upset at sea. The improvement allows of the taking-up of the center-board for repairs, and its adjustment to enable the vessel to sail closer to the wind.

Fig. 1 is a perspective view of the vessel, and Fig. 2 a section showing the application of the center-board. The center-board, D, may be of common form, and is hung on a bolt, *a*, which passes through it and through the box or curb, C, which is placed in the well hole, A. A rod, *b*, lowers or raises, D, through the bottom of the vessel. A forked lever, E, is also applied to it over the pin, *a*, and E is capable of a lateral movement on *a*. The interior of C is made narrowest at the center of its length, where it is only just wide enough to let E work freely up and down, and from the centre toward each end it is widened to permit E to be moved laterally, to set the center-board obliquely to the central plane of the vessel. To provide for securing the center-board either while set directly fore-and-aft or obliquely thereto, there is secured to the end of box C a stationary plate, F, provided with three notches, *d*, in either of which the lever E can be placed, altering the direction of the obliquity of the board. The rod, *b*, passes through the fork, *c*, of E. By setting D, by means of E, so that its front end inclines to windward, the vessel will be

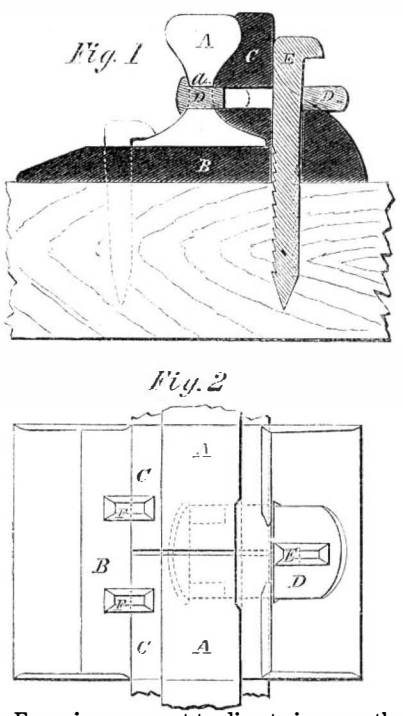
PRATT'S IMPROVED CENTER-BOARD.



enabled to sail closer on a wind, and hence be much more under control and enabled to be kept from a lee shore. The oblique direction of D must be changed every time the vessel is in stays. As an auxilliary to D, the cutwater, G, is made to project from the vessel and to be movable like a rudder, that it may be set to windward like the center-board in sailing on a wind. H is the handle or tiller for moving it, and I the rack for holding it in place.

The patent is dated March 1, 1859, and any further particulars may be obtained from the inventor, who is desirous of disposing of the improvement, being himself too far advanced in years to undertake its introduction.

Graham's Railroad Chair.



Every improvement tending to increase the durability and safety of the permanent way of railroads, should receive careful attention and patient investigation, for at the present day the Iron Horse is the type of our civilization, and it is the means we employ to developes the recources of nature. Therefore, we ask attention to the invention of H. H. Graham, of Paterson, N. J., which is the subject of the accompanying illustration. Fig. 1 is a vertical section of this railroad chair through the joint, and Fig. 2 a plan.

A A are the ends of two rails, abutting agafnst each other and resting on the bottom, B, and against the side, C, of the chair. The side, C, is of such a shape as to conform to the rail and rises to the level of the top, and occupies the outer side of the rail as is usual. Each end of the rail is notched and a horizontal binder, D, is inserted through the mortise thus formed by the two ends, and also through a corresponding mortise in the side, C. This binder has ribs, *a*, upon it that enter into the notches in the mortise to prevent the rails sliding off the binder, only sufficient play being allowed to admit of contraction and expansion.

The binder, D, has a flat or fish-shaped head on the inner side of the rails, A, and a mortise through its body to receive the spike, E, which passes down outside and against C, and through a mortise in it, and as the spike is slightly tapered, it draws the binder, D, close against the rail, and the rail against the side, C, of the chair, in such a firm manner, that no separation can take place unless the chair breaks, and and any motion in the parts tends to tighten the binder either by forcing the spike further into the wood, or if tending to draw the spike out, the wedge-shaped spike takes the strain and acts to bind the parts together, and any wear or working of the parts is compensated by driving the spike further into the wood.

F F are the spikes that hold down the inner edge of the rail and the rail at this point need not be notched, as now, because any creeping of the rails is prevented by D. The spike, E, is notched, so that it would require great force to withdraw it, although it can easily be driven into the cross-tie.

This good method of securing the ends of rails in chairs was patented April 12, 1859, and the inventor will be happy to give any further information upon being addressed as above.

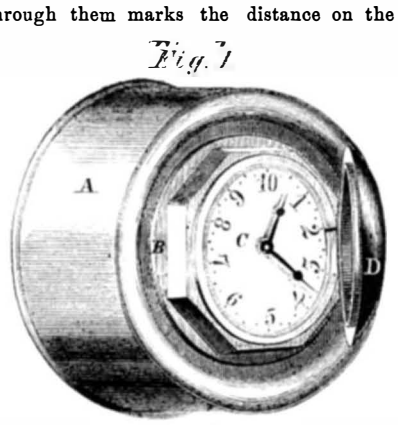
To News Agents and Dealers in General.

We invite your special attention to the fact that, on the 1st of July *next*, the Scientific American is to be enlarged and otherwise greatly improved; and we urge upon you the importance of making unusual efforts previous to that time, to increase your list of patrons for it. Send in your orders as early as possible to the General Agents here, from whom you are receiving your supplies; so as to enable us to determine how large an edition we shall need to publish in order to supply the extra demand. It is out of the question for us to stereotype the numbers, hence the importance of receiving your early orders.

Work's Odometer.

There have been many devices for measuring and indicating the distance run by a vehicle, but they have nearly all been so imperfectly constructed, that every jolt of the wheel in passing over a stone either disjointed the whole, or was registered as onward progress. The subject of our illustration is without this defect, and is efficient, durable and cheap, and an invaluable attachment to a carriage or vehicle of any kind.

Fig. 1 is a perspective view, and Fig. 2 a view of the working parts. A is the outer hub band, having the chamber, B, screwed inside it; a dial, C, and index hands appear on the outside of B, and a door or lid, like that of a watch, D, closes it up water-tight and dirt tight. The operation of the odometer is derived from the gravity of a weight, E, which is of curved form, and as it is connected to an arm, F, that is pivoted at the center of the hub to some small gearing, the rotation of the hub as the wheel progresses moves the toothed wheels (not shown) and through them marks the distance on the



dial; E remaining stationary. To the center of the end of F, where it is pivoted to the gearing, a small ratchet wheel is attached, and this by a pawl and spring that tends always to keep the pawl in the teeth, prevents the weight from registering when the vehicle is backed. This little piece of mechanism is so simple that it can be understood at a glance, and there is no fear of its getting out of order, but it will run from year's end to year's end with perfection.

The inventor of this odometer or "hubometer" as a gentleman facetiously called it, is Thos. K. Work, of Hartford, Conn., and it was patented Feb. 8, 1859. They are so adjusted that one revolution of the long pointer indicates ten miles, and the short one a hundred. Any further information will be given by the inventor upon being applied to as above.

Black Japan Varnish can be made thus:—Fuse by a gentle heat twelve ounces of amber and two ounces of asphaltum; then add two ounces of black rosin and half a gallon of boiled oil; mix well, remove it from the fire, and when nearly cold, add three-quarters of a pint of spirits of turpentine; mix well together.

© 1859 SCIENTIFIC AMERICAN, INC.

Scientific American.

NEW YORK, MAY 14, 1859.

Draining Farm Lands.

The benefits resulting from the underdraining of farm lands has been a settled question for many years in those countries of the old world distinguished for science and skill in practical agriculture. It is also a settled question with some of our enterprising farmers, but with the mass of them it is a new subject, so far as their own practice is concerned. A healthful general interest is now felt in this matter by our agriculturists; and this, we think, must eventuate in good results.

Underdraining consists in cutting deep narrow trenches on lands, for the purpose of tapping undersprings near the surface, and also for carrying off rain water that would otherwise collect and stagnate near the roots of the plants. Some contend that underdrains should also embrace the feature of admitting air and ventilating the under surface of soils. This question should never be touched upon in this connection; the removal of the surplus and stagnant water is the main object of drainage. Underdrains are covered and placed at such a depth from the surface as not to interfere with the plowing or with other mechanical operations in the field.

There are differences of opinion among practical men as to the proper depth, and the requisite distance apart at which drains should be laid. This arrangement must depend in a great measure on circumstances. Deep drains are far more expensive to cut than shallow ones, but then a smaller number are required in each field. At one period two-and-a-half feet drains were common in Britain, now five-feet drains are becoming more general. Four-feet drains situated forty feet apart will afford effectual drainage to any field, but the proper depth depends almost entirely upon the nature of the land. If the cutting is through hard-pan, three-feet drains situated thirty-five feet apart will be the cheapest, and answer perhaps as well. They must be placed beyond the reach of frost as an imperative condition; when this is secured, they can be cut deep or shallow, according to the nature of the ground, so long as they are able to carry off the surplus and stagnant water.

The material of which the drains are made is an important feature. The oldest drains were formed by cutting to the proper depth, laying up the cuts with a layer of cobble or loose stones, then placing some brush-wood or straw over these, and filling up with the soil. These drains soon choke up with mud, and they have been mostly superseded by open drains, formed of unglazed tile or earthenware tubes, molded and burned like brick, and having joints or collars where the ends join. They are the most expensive drains at first, but the cheapest in the end. One kind of tile consists of a flat bottom, with a semi-tubular top. They are laid down in such a manner as to lie in perfect line, with a slope of about one foot in the one hundred feet; his fall is sufficient to carry off the water. Tubes of about one and a half inches in diameter answer for the lateral drains; these should lead into one general or main discharging drain of large diameter. Where flat stones are abundant, very good open drains may be made by laying them on edge to form the sides, then covering them on the top with flat caps. Loose stones, if they can be obtained, should be laid upon the top of covered drains before the soil is filled in.

Considerable engineering skill is required in laying out a field for proper drainage, so as to give all the drains the proper incline, and carry off the water by the natural slope of the land. As there are elevations and depressions in most fields, no *particular* directions can be given for laying out all the drains in them—they must be planned according to the circumstances of the case. There are few of our farmers who have not sufficient ingenuity to engineer their own fields and lay out their own drains, if they apply themselves to the work.

All stiff and springy soils should be drained, and especially those which have clay subsoils, as these retain the water and form undersprings which injure the roots of the plants. One great object of drains is to tap shallow springs, and another is to carry the rain water down through the soil, and prevent so much surface evaporation, as it carries off the heat, and reduces the temperature of the plants and ground. Sandy soils with gravely under strata do not require drains, as they afford good drainage from their very constitution.

A recent number of the *Mark Lane Express* (London) contains an article from its American correspondent—Mr. Henry S. Olcott, of this city—a scientific agriculturist and able writer on such subjects, which affords some very useful information on underdraining. He describes the case of Mr. John Johnstone, an intelligent farmer who resides near Geneva, N. Y., as an instance of great success in draining farm lands, He commenced operations about nineteen years ago, and has laid about forty-seven miles of drains upon his farm. During one season, when six of his neighbors raised only seven bushels of wheat to the acre, his fields yielded twenty-nine bushels. This case is cited as positive proof in favor of the profits which may result to every farmer who underdrains his lands thoroughly. We know that the great majority of our farmers have not a sufficient amount of capital to carry out such a system of improved agriculture, but we think that most of them can do something, however little, to introduce and commence the work of progress in this department of practical agriculture.

The New Commissioner of Patents.

The Hon. W. D. Bishop, ex-Member of Congress from Connecticut, has been appointed by President Buchanan to fill the important office of Commissioner of Patents. Fortunately for the interests of the inventor and the Patent Office, the two preceding Commissioners—Judge Mason and Mr. Holt—were not only able men, but they held broad, liberal and comprehensive views respecting its management. They manifested large sympathy for the inventor, and had the moral courage to interfere in his behalf and to protect his rights by over-ruling wrong decisions which, in the infirmity of human judgment, are by no means uncommon. This independent and manly course of action not only secured for them the cordial respect of all applicants, but also impressed the Examining-force of the Office with the conviction that the Commissioner of Patents is, by virtue of his office, the highest in authority. Had they pursued any other course of action, instead of the respect and confidence of all, they would have failed to secure the esteem of any. Instances of this kind could be named, but we forbear. We may say, however, in reference to Judge Mason and Mr. Holt, that they are now two of the most popular men in the country.

From a personal acquaintance with Mr. Bishop, of many years' standing, we are prepared to say that he will make an able and popular Commissioner, and while he will receive and courteously respect the opinions of others, he will, in the main, do his own thinking, and will decide all questions submitted to him upon the facts, and without prejudice. Mr. Bishop is a *progressive* man; he believes that the end of all improvement in the arts and sciences has not yet been attained; he comes of a progressive stock, and it is perhaps not too much to say that his late father, Alfred D. Bishop, was the most energetic, persevering and clear-headed business man in the State of Connecticut. The newly-appointed Commissioner has no sympathy with "old-fogyism," and he will be likely to carry out the general practice of his predecessors, which has conferred so much dignity and glory upon the Patent Office. Although, probably, the youngest man ever appointed to the office of Commissioner, Mr. Bishop is nevertheless well qualified for its duties. He is a graduate of Yale College; has studied law; and in successively filling the positions of Superintendent and President of a prominent railroad, he has been accustomed to practical thinking, and, moreover, has an unusual taste for mechanism.

That Mr. Bishop is no mere novice in the matters that appertain to his new station is evidenced by the fact that he has been a reader of the Scientific American for many years, and is conversant with the progress of invention, and with the business of the Patent Office so far as it is developed through the columns of this journal. As a member of Congress he represented an intelligent constituency, distinguished for their manufacturing enterprise and skill, as well as for their ingenuity; and during this period he held the important position of Chairman of the Committee of Manufactures. We predict for Mr. Bishop a successful and popular official career.

Horticulture and Mental Cultivation.

The love of cultivating gardens seems to be innate in man, and only requiring, where it seems to be absent, some small incentive to call it forth, with all its grandeur and holy influence. It is the primeval occupation, and taught our first parents love to the Deity and each other, in the umbrageous shades of the pristine Paradise. It is the natural associate of a cultivated mind; and strange to say, some of the most beautiful pastorals and rural poesy in the English language have been written by men who lived in London, and who derived their inspiration from house-sparrows and bricks and mortar, thus showing that with the cultivation of the mind—the approach to the pure Adamic intellect—came the yearning for the flowers of the garden and the evergreens of the shrubbery. It is also illustrated on our own continent by the dwelling-places of our great minds. We expect to find the giant intellects of the age at the centers of learning, deep in the massive study, and surrounded by the apparatus of collegiate information. To a certain period they are there, but how soon Irving buries himself with nature only, at Sunnyside; and Emerson, the philosopher, flies to quiet Concord, to contemplate, amid trees and flowers, the abstract truths that he evolves.

All nations, at all times, have acknowledged the value of horticulture as a humanizer and civilizer, just as cultivation of intellect calls for associate cultivation of flowers and plants. The one induces the other.

An anecdote will prove this.

When the Rev. Mr. Boyd was appointed rector of Skipton Parish, in Yorkshire, England, he found a rude, unrefined, and, to a considerable extent, immoral population. The first step he took towards their amelioration was to lay out and plant a beautiful flower-garden attached to the rectory, to which he gave free access to his parishioners at all times. He afterwards encouraged some of them to ornament the gardens attached to their cottages by giving them plants and seeds; and in the course of a very few years this rude population was, by the kindly influence of horticulture and floriculture, transformed into a most orderly, gentle, and refined community.

This may be called a novel way of preaching the gospel, but it is a good and practical one, and we look to some such result as this from our own Central Park. Philadelphia finds it in her squares and fountains; Boston in her common; New Haven in her elms; and other cities should depend more than they do upon trees, flowers, shrubs and evergreens for the extinction of rowdyism, and less upon an uncertain punishment of offenders.

The benevolent ladies of our own city are beginning to appreciate the value of horticulture as a female employment, and are about to establish a horticultural school for females upon Long Island, where poor orphan girls may be taught gardening as an art. In after years those girls, saved as they will have been from the vicious influences of a large city, and having a stock of robust health and an occupation that will keep their body and mind in active and pleasant exercise, will thank the lady, Mrs. Phelps, who founded it, more by the grand work they shall achieve, than by mere empty words.

It is a healthy sign of the onward intellectual march of the race, that gardening, as a business, and by amateurs, is becoming more and more extended, and that the army of civilization is looking with love and fondness at the trees and flowers, the leaves and grass, the blossom and the fruits, that are found with successive beauty upon the waysides of its track through the ages.

Electricity and Steam Boiler Explosions.

Our cotemporary, the *North American*, states that some years since, Richd. L. Loyd, of Philadelphia, discovered that electricity was the cause of steam-boiler explosions, and that by supplying them with a metallic lightning conductor he prevented such catastrophes. This discovery, it says, remained in neglect for a number of years, but is now revived by George T. Barry, of the same city, who had heard of Loyd's experiments. He has heated a boiler red-hot, then pumped 30 gallons of cold water into it, and no explosion followed, because it had a metallic conductor to carry off the electricity. It says "the belief is universal that all steamboat or factory boilers, if tried by the simple test of pumping water into them while red-hot, must inevitably explode."

We, at least, disclaim such belief, because we know it is not correct. We have, in one instance, ourselves, run cold water into a red-hot boiler without producing an explosion; we did this cautiously, to be sure, but we have been informed of several cases where less caution was observed, and no explosion followed. Explosions are liable to occur if cold water is admitted into a red-hot boiler, by the generation of a very high pressure of steam when the metal is greatly weakened with the heat. We do not see how electricity has anything to do with explosions, or that an electric conductor can afford any additional security to a boiler. There may be something in this electrical theory of explosions, but we really cannot perceive it.

To prove this electric theory, it is stated that a nine-inch bomb-shell, partly filled with water and sealed up, was heated red-hot, and the water converted into steam, without producing an explosion. No sooner, however, was there a spark from a galvanic battery sent into it by a wire than the shell was bursted into fragments.

If this circumstance really took place, which we much doubt, it would not prove that the explosions of steam-boilers are caused by electricity, because in this very case the electric spark was generated in a battery, not in the boiler. The metal of the boiler itself is a conductor, and it is connected by pipes to the machinery and the water-pump, so that if any electricity is generated in a boiler, it must be carried off as soon as it is formed. We know, indeed, that if a steam-boiler is isolated on glass legs and steam made to issue from a narrow orifice on the safety-valve, a large quantity of electricity will be generated by the simple friction of the steam; but the boiler itself is never surcharged.

Cure for Hydrophobia.—A correspondent of the Providence *Journal* recommends asparagus as a cure for hydrophobia in any stage of canine madness. The directions are: "Eat the green shoots of asparagus raw, sleep and perspiration will be induced, and the disease can thus be cured." This remedy proved effectual to a man in Greece after the paroxysms had commenced.

© 1859 SCIENTIFIC AMERICAN, INC.

Fire Extinguishing Balloons.

MESSRS. EDITORS:—Agreeable with your request I will attempt to give the readers of your valuable journal all the information I possess in regard to Bucher's fire-extinguishing balloons. I regret that I have not at hand the specification of Mr. Bucher's Prussian patent, as without its aid I can only relate what I have seen at various trials before the Chiefs of the Fire Departments of Leipsic and Berlin, and what I have heard concerning the chemical nature of the balloon from the inventor himself.

The balloons are sold in the form of round balls of 2, 4 and 8 pounds each, or in the form of quadrangular sheet-iron boxes, weighing from 5 to 15 pounds. These shells or boxes are filled with a compound of niter, sulphur, charcoal, and common gunpowder, mixed in such proportions that the nitrogenous material is in excess, and in such a manner that the shell explodes slowly and softly, not suddenly and destructively, when exposed to a high degree of heat. Every practical chemist will understand how this is done. In each balloon or box there is inserted one or more tinder rags which have been saturated with gunpowder or niter, so that they quickly catch fire and communicate it to the interior, causing explosion in less than thirty seconds. This rag being lighted, the balloons or boxes are thrown by hand into the room where the fire rages, or with sticks, like rockets; the result is that the room is filled with nitrogenous gas, which extinguishes all the fire within reach. A two-pound shell will fill a room 10 feet square, and the larger ones in proportion. From this short description you will see the superiority of these balloons over Phillips' Fire Annihilators, which are not so conveniently handled; at the same time you will perceive that the balloons can be of little use in the open air, or where the fire extends over a large area. DR. G. SCHUTTE.

New York, April, 1859.

[Fire-extinguishing bombs of a similar character to those of our correspondent are described on page 349 of "Ewbank's Hydraulics." They were applied in the same manner, and when the powder exploded, it is stated, the flames were instantly extinguished.—Eds. SCI. AM.]

Parchment Size.

Take one pound (or less to suit a particular purpose) of waste cuttings of parchment or vellum, and cleanse them well in water to free them from extraneous dirt and dust. Then put them into an earthenware pipkin with a gallon of soft water to every pound of cuttings, and let it simmer till the water is reduced to half the original quantity. If necessary, which is seldom the case, strain the liquid through a fine hair sieve into any clean vessel, and when cold it will have the appearance of good colorless jelly. To make the size stronger, it is merely necessary to let it simmer by the fire till it attains the required consistency, as it is only the water which evaporates by the action of the heat. It is used by print-cleaners and bookbinders to restore consistency to the paper after it has undergone the chemical process of cleaning, which would otherwise cause it to rot. It is used by ladies to stiffen straw bonnets, children's hats, silk dresses, &c. It is also useful to stiffen leather for modeling; and prints which are taken off on unsized paper, and which consequently cannot in that state be colored, may be dipped in the solution, and when dry, they will bear the color perfectly.

S. PIESSE.

Curious Calculation.

The vast number of inhabitants who do live, and have lived, upon the face of the earth appears, at first sight, to defy the powers of calculation. But if we suppose the world to have existed six thousand years; that there now exist one thousand millions; that a generation passes away in thirty years; that every past generation averages the present; and that four individuals may stand on one square yard, we will find that the whole number will not occupy a compass so great as one fourth the extent of England. Allowing six thousand years since the creation, and a generation to pass away in thirty years, we shall have two hundred generations, which at one thousand millions each, will be two hundred thousand millions, which being divided by four persons to a square yard, will leave fifty thousand millions of square yards; there are, in a square mile, three millions, ninety-seven thousand, six hundred square yards; by which, if the former sum be divided, it will give sixteen thousand one hundred and thirty-three square miles, the root of which, in whole numbers, is about one hundred and twenty-seven; so that one hundred and twenty-seven miles square will be found sufficient to contain the immense and almost inconceivable number of two hundred thousand millions of human beings; which vast number rather outnumbers the seconds of time that have passed since creation.—*English Paper.*

Inspection of Gas Meters.

At the late session of the Legislature of this State, a law was passed, which went into operation on the 4th inst., providing for an inspector of gas-meters, and every new meter must now be subjected to an approved test before it can be put into public use by any gas company. If found defective, the inspection fee is to be charged to the company; otherwise the consumer pays it. The inspector appointed for this city is George A. Kitchen, No. 561 Broadway, who is practically conversant with the business. The greatest manufactory of gas-meters in this city is that of S. Downs, in West Twenty-second street, where great numbers of these useful and ingenious apparatuses are made for every city and town in the Union lighted with gas. We understand that dry meters are superseding wet meters to a considerable extent, as they are not so troublesome—neither heat nor cold affecting them to such an extent. The first patent secured for the invention of the dry gas-meter in this country was by James Bogardus, Esq., of this city. Whether the new law of gas-meter inspection will prove a benefit to the people or not, remains to be seen. Judging from the inefficient manner in which most of our statutes are executed, we should say it would not, as it does not provide for the quality of the gas which shall be used, which is a most important point for the consumer.

Missouri Hemp.

A cotemporary states that the farmers in Missouri are now devoting more attention to the cultivation of hemp, and that many of them raise about from 100 to 120 tuns annually, besides grain crops. It pleases us to hear this, as we are confident that as good hemp can be raised in the United States as any country on the face of the earth. The greatest drawback to the success of American hemp is the want of care shown by our farmers in preparing it for sale. It is generally very dirty and much broken, whereas the Russian, Italian, and Manilla hemps are generally very clean and carefully prepared. If our farmers would take more pains in retting and cleaning their hemp, it would bring one and a half cents more per pound in the market.

LAKE PHENOMENA.—The waters of Lake Ontario are now higher than were ever known before. They have been gradually rising for the past eight years, under what appears to be a law not well understood—that is, they keep rising for a certain number of years until they attain to a certain hight, then they as gradually decline, and so keep rising and falling in intervals extending over periods of years.

The tumor taken from the King of Naples was embalmed in quinquina, placed in a silver box, and buried in the royal chapel "with proper ceremonies." What are proper ceremonies for the burial of a royal tumor?

Old Wine for New.

The good people of the kingdom of Cathay must have been greatly astonished when the African magician went about their streets offering new lamps for old ones, hoping thereby to gain the wondrous lamp then in Aladdin's possession. The good people of the present day will not be a whit the less astonished when we inform them how to make old wine from new in as short a time as Aladdin was in the genii's garden. Some French chemists have been investigating the *ageing* of wines, and to facilitate the process, M. Kruger proposes two methods—one to cover the bottles with horse-dung and heat the cellar by means of hot water pipes; and the other to suspend, in the heated cellar, plates of iron over the exposed surface of the wine. The iron, he contends, when in a state of oxydation, extracts the oxygen from the wine, and produces maturity more speedily. M. Odart de la Doree, the author of the "Manuel du Vigneron," &c., indicates a process older and still more rational, which is to heat the bottles. The ancients, we know, were careful to heat their amphoras. He advises us simply to heat the bottles, taking the precaution not to fill them quite full, to prevent their bursting. They are next to be placed in an oven some hours after the bread has been withdrawn, and left there from twelve to twenty hours. They are then taken out, filled up, re-corked, and the operation is completed. The wine, it is said, will speedily attain maturity.

A Rat-Skin Suit.

An ingenious individual, of Liskeard, Cornwall, England, has, for some time past, been exhibiting himself in a dress composed from top to toe of rat-skins, which he has been collecting for three years and a half. The dress was made entirely by himself; it consists of hat, neckerchief, coat, waistcoat, trousers, tippet, gaiters, and shoes. The number of rats required to complete the suit was six hundred and seventy; and the individual, when thus dressed, appears exactly like one of the Esquimaux described in the travels of Parry and Ross. The tippet or boa is composed of the pieces of skin immediately round the tail of the rats, and is a very curious part of the dress, containing about six hundred tails—and those none of the shortest.

Hair of Children.

It is a great mistake to plait the hair of children under eleven or twelve years of age. The process of plaiting more or less strains the hairs in their roots by pulling them tight; tends to deprive them of their requisite supply of nutriment, and checks their growth. The hair of girls should be cut rather short, and allowed to curl freely. When they are about eleven or twelve, the hair should be twisted into a coil not too tight, nor tied at the end with thin thread but with a piece of ribbon.

Treatment of Peach Trees.

R. Seamans, of Cecilton, Maryland, thus gives his plan of treatment of peach trees, which he cultivates on a large scale:—

They should be carefully examined every year, and all the worms and *ova* destroyed. A shovelful of wood ashes thrown around the roots every spring is beneficial. When six years old, the soil should be cautiously removed for about two feet around the trunk, so as to examine the root. A strong wash of lime and some salt should then be applied to the top of the root at the trunk and for about eighteen inches above it, prior to which application the rough bark should be scraped off. The removed soil is left open for one week, then placed in its former position. A yearly examination for worms, a rich soil, and careful cultivation are all necessary for the prosperity of the peach-tree.

PROSPECTUS OF NEW VOLUME.—See last page of the paper. No such opportunity to begin new subscriptions is likely to occur again for many years. The volumes of the new series will be of great value for preservation and future reference.

Notes and Queries

*** PERSONS who write to us expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

WE are unable to supply several numbers of this volume; therefore, when our subscribers order missing numbers and do not receive them promptly, they may reasonably conclude that we cannot supply them.

J. C., of Ohio.—Your theory of the action of the brain is not new; it has long been acknowledged as feeding the nerves and smaller centers of ganglionic matter with nutriment as well as sensation. Else why do certain phosphogenized compounds particularly assimilate themselves to it, but to give it matter for the nutrition of itself and branches.

R. H. A., of ——.—The idea of a choking strap is not new, but the peculiar form of the one we illustrated was. Your experience of their efficiency entirely accords with our own and Mr. Norvill's.

J. H., of Ga.—Will you not allow an editor to have a bit of fun now and then? we should have thought the satire was plain enough to be understood. Your idea concerning the explosion of saltpeter is very good, as you say, when the "old salt" falls into bad company, und. r exciting circumstances, it will.

J. W., of Ohio.—Pure white lime, with about an ounce of dissolved glue to the gallon, is the best whitewash for the interior of houses. For an outside whitewash, add one ounce of salt to the gallon of lime and half a pint of sweet milk.

C. A. R., of Texas.—Your proposed route for an Atlantic Telegraph Line by the north of Scotland, the Orkney and Faroe Islands, Iceland, Greenland and by Davies Straits to America, appears feasible, as the largest length of cable required will only be a few hundred miles. The suggestion is not, however, new.

G. G., of Tenn.—The experiments with water-wheels conducted by the member of the Franklin Institute were published in their Journal. The most recent work on the subject is the Lowell Experiments, conducted by Mr. Francis, Engineer, Lowell. Communicate with him as to its price.

H. G., of Me.—We do not wonder you complain at the action of your agent in retaining your model three or four weeks after your papers were prepared and sent to the Patent Office. It is an established rule in this office to send models to the Patent Office every week by express, so that the cases of our clients are never delayed in the manner you suggest. It is not unusual for patents to issue within two weeks after the specifications and drawings are returned to us executed.

G. W., of Mass.—The "calcium light" is produced by burning oxygen and hydrogen gas on a piece of lime. It is better known as the Drummond light, although he is not the inventor of it. The credit is due to Goldsworthy Gurney, of Cornwall, England; he suggested it in a work on chemistry, long before Mr Drummond had adopted it to make signal lights in the trigonometrical surveys of the British Ordnance Board.

J. M., of N. Y.—No article has ever appeared in the SCIENTIFIC AMERICAN stating that a gold medal and a small amount of money would be given to any one that should invent a substitute for cotton, and a fire-proof paper for banks and commercial purposes. We should like to examine the samples of your alleged discoveries.

J. D. B., of Ala.—A roof of light pitch, covered with thick canvas and painted with two or three thick coats of white lead, then sanded thickly on the surface, will not be equal to one of tin, although it will no doubt answer a very good purpose. All tin roofs should receive a coat of red lead and be sanded on the top.

J. T. G., of Ill.—There is no known simple process for recovering the gold from old jewelry. There are two processes employed—the one by cupellation, the other by acids; both are tedious and troublesome. If you have much of it, we advise you to sell it to a refiner and smelter.

W. B., of Conn.—Zinc and lead do not seem to have such affinities as will make alloys. By introducing small shavings of lead among molten zinc you may be able to make an alloy, but we doubt it.

W. S. R., of Conn.—In order to filter the hard water before it is admitted into your boiler, it should be conveyed into a tank and heated by exhaust steam, then made to percolate through fine wood shavings and gravel, into a receiver, from which it is to be pumped into the boiler. The water, when heated, will deposit its impurities among the shavings and gravel.

J. C. C., of Conn.—A semi-circular groove in a pulley is the best for a round belt, and it is the most easily turned. This opinion is not based on experiment, but simply on a consideration of the question.

J. A. R., of Mass.—We are unable to answer your inquiry.

A. C., of Pa.—It is not enough for you to say that the method for tempering mill picks we recommended is not equal to the one practiced by you. You should explain your method, so that we can know what it is.

J. M. B., of Phila.—Free hydrogen gas is seldom generated at fires, but there is plenty of carbureted hydrogen, which if mixed with free oxygen, will suddenly explode when ignited. Saltpetre, as you state may give off free oxygen, when roasted in a house on fire, and cause an explosion by mixing with the combustible gas.

F. G., of Ohio.—A pound of terra-japonica applied once per week is sufficient for a ten-horse power boiler; it must be dissolved before it is put in. It is said to be very useful for preventing and removing scale.

© 1859 SCIENTIFIC AMERICAN, INC.

Wm. H. J., of Va.—We are not acquainted with any good receipt-book on painting.

F. R. R., of N. Y.—A cement composed of brick dust, litharge and linseed oil is very good for tanks or cisterns, but do not wet the surface with water before you apply it; use linseed oil for this purpose.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, May 7, 1859 :—

D. B. D. L., of N. Y., $30; S. N. C., of Ill., $25; B. S. C., of N. Y., $30; M. J. B., of Tenn., $50; S. F. J., of Ind., $30; H. B. K., of R. I., $25; T. S., of Pa $25; R. A. F., of N. Y., $35; H. W. B., of R. I., $30; G. S., of L. I., $30; L. & P., of Ct., $30; D. N., of Ill., $35; E. T. Q., of N. H., $25; S. E. G., of Ill., $30; A. E. P., of Ill., $46; G. & G., of Pa., $25; N. & C., of Ct., $30; H. S. Jr., of N. Y., $60; J. P. B., of Wis., $25; H. & R., of Ind., $25; C. A. & S. W. Y., of R. I., $30; S. A. C., of Ill., $23; C. L. R., of Pa., $25; J. C., of Miss., $30; L. S. W., of Ct., $30; D. K., of Va., $30; A. G., of Ala., $50; D. W., of N. Y., $60; P. P. M., of N. J., $30; J. B., of N. J., $30; E. C. B., of Ma s., $10; G. S. T., of Mich., $25; A. H., of Texas, $15; D. W., of L. I., $20; T. H. T., Jr., of Mo., $25; W. F. P., of Pa., $30; F. O., of N. Y., $25; W. B., of Wis., $25; H. D., of Ct., $25; W. & W., of R. I., $25; C. H. H., of L. I., $55; L. C., of Ala., $30; J. B. W., of N. Y., $30; R. S. V. N., of N. Y., $30; T. McB., of N. Y., $25; G. S. T., of Mich., $30; L. H. C., of N. Y., $30; J. S., of Ct., $30; W. R. L., of Ct., $30; A. O. H. P. S., of Tenn., $25; W. & R., of Ill., $30; H. E., of Ill., $30; D. S., of Mass., $12; P. & S., of Md., $250; B. D., of N. J., $25; G. A., of N. Y.' $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, May 7, 1859 :—

C. A. & S. W. Y. of R. I.; J. P. B. of N. Y.; P. N. B. of N. Y.; W. & W. of N. Y.; T. J. W. of N. Y.; W. D. B. of Ark.; L. W. of Ill.; L. S. W. of Ct.; J. N. of Mich.; T. McB. of N. Y.; D. S. of Pa.; A. P. of Ill.; A. O H. P. S. of Tenn.; E. C. B. of Mass.; T. H. T. J. of Mo.; S. N. C. of Ill.; H. & R. of Ind.; B. H. W. of Mo; W. B. of Wis.; H. B. K. of R. I.; W. C. of Iowa; R. A. F. of N. Y.; G. F. D. of Pa.: W. H. K. of Ky.; C. H. H. of N. Y.; L. K. S. of Ct.; E. T. Q. of N. H.; F. O. of N. Y.. L. & P. of Ct; G. A. of N. Y., J. Y. P. of N. Y.; J. S. of Pa.; J. S. of Pa.; C. L. R. of Pa.; J. D. C. of Pa.; H. D. of Ct.; J. D. B. of Vt.; F. G. of Mich.; G. & G. of Pa.; N. & C. of Ct.; G. S. T. of Mich.; G. P. of Pa.; W. C. of Mass. H. S., Jr. of N. Y.

MAGAZINES RECEIVED.

Blackwood's Magazine for May. Published by Leonard Scott & Co., No. 54 Gold street, New York.

The Westminster Review. L. Scott & Co. No. 54 Gold street, New York.

The Charleston Medical Journal and Review. Editor and publisher, J. Dickson Bruns, M. D., Charleston, S. C.

The Journal of Materia Medica. Tilden & Co., New Lebanon, N. Y.

American Druggists' Circular and Chemical Gazette. L. V. Newton, M. D., 36 Beekman street, New York.

IMPORTANT TO INVENTORS.

AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the Scientific American, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of thirteen years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office, 37 Park Row, New York. We established, over a year ago, a Branch Office in the City of Washington, on the corner of F and Seventh streets, opposite the United States Patent Office. This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at our office.

We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 66 Chancery Lane, London; 29 Boulevard St Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we may safely say that three-fourths of all the European patents secured to American citizens are procured through our Agency.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

The annexed letters from the last two Commissioners of Patents we commend to the perusal of all persons interested in obtaining patents :—

Messrs. Munn & Co.—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

Immediately after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the subjoined very gratifying testimonial :—

Messrs. Munn & Co.—It affords me much pleasure to bear testimony to the able and efficient manner in which you discharged your duties as Solicitors of Patents while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and, I doubt not, justly deserved) the reputation of energy, marked ability, and uncompromising fidelity in performing your professional engagements.

Very respectfully, your obedient servant.

J. HOLT.

Communications and remittances should be addressed to MUNN & COMPANY,
No. 37 Park-row, New York.

THE PATENT RIGHT OF A CRADLE FOR sale, on entirely new principles. Apply at No. 23 Macdougal street, New York. 36 1*

INVENTORS' EXCHANGE, 37 PARK ROW, and 145 Nassau Street, New York.—Terms, Regulations, &c. :—1. All persons sending Models, Designs, Drawings, or other articles, occupying one square foot or less will be charged $6 per year—payable $3 semi-annually—in advance. 2. Two dollars extra for every additional square foot, not exceeding in all five square feet; when larger, a special agreement will be made. 3. When the patentee or his agent (other than ourselves) is present, to exhibit his invention and effect sales, the charge per week will be by special agreement. 4. Any Models, Drawings, &c., may be taken away at any time, but no deduction will be allowed from the entrance fee. 5. Persons wishing us to act as agents, can so inform us, and we will send a Power of Attorney to be signed and returned.

REMARKS.

Patent Reports kept on hand, to which the public can at all times have access. All who have valuable inventions, and not the means to bring them out, and tho e who have patents that are infringed upon by others, are especially invited to call. Manufacturers can here advantageously exhibit specimens of their goods on the above terms, and should they wish our services, we will act as agents for a reasonable commission. Our facilities for negotiating patents, having agents in every section of the country, cannot be surpa sed. Pamphlets containing a list of Patents on exhibition and for sale, will be sent to any one, on the receipt of six letter stamps. Pe sons who send Models, &c., must in all cases prepay transit expenses, and mark their packages :—"Inventors' Exchange, 37 Park Row, New York City." And when they desire answers, will enclose a letter stamp.

1* WILSON, HEATH & CO.

TO MANUFACTURERS.—A RESPECTABLE, energetic, and experienced business man wants to engage as partner with a manufacturer of some good, new or patented articles, or would be willing to act as sole agent for the introduction of such articles, either by traveling himself or by establishing a salesroom in New York City, and managing in this way sub agencies in other cities. Has the best of references for his responsibility and business qualities. Address C. G., room 26, No. 335 Broadway, New York. 1*

WROUGHT IRON PIPE FROM ⅛ OF AN inch to six inches bore; Galvanized Iron Pipe (a substitute for lead), Steam Whistles, Stop Valves and Cocks, and a great variety of fittings and fixtures for steam, gas, and water, sold at wholesale and retail. Store and Manufactory 76 John, and 29, 31 and 33 Platt st., New York. JAMES O. MORSE & CO. 31 13

STEPHENS' DYES FOR WOOD—FOR dyeing inferior woods to imitate the valuable kinds. Samples and prospectuses sent everywhere on receipt of 15 cents in postage stamps. Stephens' Liquid Drawing Ink for Engineers, Artists and Designers, 12 cents per bottle. Sold by stationers and artists' colormen. HENRY STEPHENS, Chemist, 35 4eow* No. 70 William street, New York.

THE SALEM WIND TURBINES ARE CONstructed of 45 and 65 feet in diameter, having areas of 1,500 and 3,000 square feet, and developing powers of 25 and 100 horses, under perfect regulation. Will stand up to a violent gale unreefed, with scarcely a vibration. A 40-feet turbine attached to a flouring-mill has been in successful operation on the praries for nearly three years, and one 45 feet in diameter is now in full work at Salem. Can grind from 40,000 to 50,000 bushels of corn annually. Turbines from one to six horses' power are also constructed upon the same principle. A card, with illustration, sent on application by mail to the Treasurer of the Turbine Manufacturing Company, Salem, Mass. 35 4teow*

GUILD & GARRISON'S STEAM PUMPS for all kinds of independent steam pumping, for sale at 55 and 57 First street, Williamsburgh, L. I., and 301 Pearl street, New York.
32 6m GUILD, GARRISON & CO.

WOODWORTH PLANERS—IRON FRAMES to plane 18 to 24 inches wide—at $90 to $116. For sale by S. C. HILLS, 12 Platt street New York. 27 tf

STEAM ENGINES AND BOILERS.—THE Subscribers are manufacturing a superior style of engine which is furnished with an extra amount of boiler and fixtures to match, at the following extremely low prices :—10 horse-power, $700; 16 do., $980; 25 do., $1,375: 35 do., $1,875; 50 do., $2,650; 70 do., $3,650. These engines are in use in most of the middle, western and southwestern States. Descriptive catalogues furnished on application. D. A. WOODBURY & CO., Rochester, N. Y. 33 3tem*

ORNAMENTAL.—I WISH TO CORRESPOND with a party engaged in the manufacture of ornamental designs in bronze or any other metal. Those wishing to add a new and beautiful feature to their business would do well to address me at Youngstown, Ohio. WM. POWERS. 33 4t*

WARREN'S TURBINE WATER WHEEL—Improved and patented by A. Warren and E. Damon, Jr. The vast number of these wheels now in operation, and the invarible success attendidg them, is the best evideuce of their advantages over ordinary wheels in the economy of water power. The American Water Wheel Co. will send to applicants (enclosing two stamps) their pamphlet, containing engravings of turbines and a treatise on hydraulics. Address, A. WARREN, Agent, No. 31 Exchange st., Boston Mass. 32 9t*

COBURN'S EXTRA OIL—FOR MACHINERY and Burning; warranted first-rate (never gums, will burn in night lamps, &c.) has given satisfaction for ten years during which we have sold it.
JOHN W. QUINCY & CO.,
16 13e5w* No. 98 William st., New York.

STEAM WHISTLES—ALL SIZES OF THE most improved patterns constantly on hand. Brass Lift and Force Pumps, (single and double-acting) Ship Pumps, &c., a full assortment. Manufactured by HAYDEN, SANDERS & CO.,
16 13 eow* 306 Pearl st., New York.

MACHINERY.—S. C. HILLS, NO. 12 PLATT street, New York, dealer in Steam Engines, Boilers, Planers, Lathes, Chucks, Drills, Pumps; Morising, Tenoning, and Sash Machines, Woodworth's and Daniel's Planers Dick's Punches, Presses and Shears; Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c. 28 e3w

THE PLOW BEAM PLANER AND MAchine Spoke Shave for Crooked Work and Cross-Grain Lumber will chamfer, round, butt, and smooth i regular and plane surfaces. All kinds of woodworking machinery. J. A. FAY & CO., Worcester, Mass. 32&36 2*

FOUNDRY FACINGS OF EVERY KIND—Lehigh, per barrel, $2 50; sea coal, $1 75; charcoal, $2 25; soapstone, $1 75; clay, sand, and kaolin, $1; leads, 2 to 8cts. L. A. ORCUTT,
21 5*e4w Albany, N. Y.

BOLTS, RIVETS, NUTS, WASHERS, Square Head Wood Screws, and Chain Links, manufactured from superior quality of iron, suitable for machinists, millwrights, car-builders, miners, agricultural implements, &c. HOOPES & TOWNSEND, Buttonwood st., near Broad, Philadelphia. 32 eow*

A SUBSTITUTE FOR LEAD PIPE.—A New and Valuable Article, viz., a Semi-Elastic Pipe or Hose which can be used with pumps of any kind, for suction, forcing, or conducting water in any and every place where pipe is required. Its properties are :—It imparts no deleterious effects to the water, nor in any way effects it unpleasantly after a few days' use; it is sufficiently elastic to be bent into curves, and it is unaffected by heat or cold: it will not burst if water is frozen into it; it is not injured by exposure to the sun or atmosphere; it is composed of ingredients indestructible, except by fire. Samples of it have been tested by use for three years, without the least apparent decay, and it can be made to bear pressure as high as 400 lbs. to the square inch. Price not far from that of lead pipe. Circulars with prices and particulars furnished by the manufacturers. BOSTON BELTING COMPANY, corner of Summer and Chauncey streets, Boston, Mass. 31 13*

HOLMES, BOOTH & HAYDEN, 81 CHAMbers street, New York, have now in store from their manufactory a complete assortment of Sheet Brass, Copper and German Silver; Brass, Copper and German Silver Wire; Silver Plated Metal, Copper and Brass Rivets, &c., to which they invite the attention of the trade and manufacturers generally, 29 8*

LEONARD & CLARK'S PREMIUM LATHES and Planers, Machinists' Tools of all kinds, Portable Engines, at 11 Platt street, New York. 29 8*

PATENT COMPOSITION BELTS—PATENT PACKING—The Company have on hand and are ready to supply all orders for their superior Composition Machine Belting. They are proof against cold, heat, oil, water, gases, or friction, and are superior to leather in durability, and much cheaper in cost. The composition gives to these belts uniform durability and great strength, causing them to hug the pulley so perfectly that they do more work than any other belts of the same inches. The severest tests and constant use in all sorts of places during the last 14 months has proved their superiority, and enables the Company to fully guarantee every belt purchased from them. Manufacturers and mechanics are invited to call, examine, and test these belts. The Patent Packing for planed joints is in every way superior to any other article ever used for that purpose. A liberal discount allowed to the trade. "New York and Northampton Belting and Hose Co.," E. A. STERN, Treasurer, 217 Fulton st., New York. 30 13

THE SCIENTIFIC AMERICAN SIGNS, for Munn & Co., were painted by Ackerman & Miller. Refer to the Commercial Agency, McKillop & Wood, Park Buildings. All communications for signs, banners, or other ornamental work, attended to with dispatch. ACKERMAN & MILLER, 101 Nassau st., next to the New York Herald Office. 27 3m

500 AGENTS WANTED—TO ENGAGE IN a new, honorable and lucrative business. For full particulars, address M. M. SANBORN,
34 3t* Brasher Falls, N. Y.

WHITMAN'S TURBINE WIND WHEEL.—Territorial or shop rights for sale. For particulars, inquire of the inventor, E. WHITMAN, at South Abington, Mass. 32 12*

STEAM ENGINES, SLIDE LATHES, Planing Machines, Drills, &c.—Orders taken for all descriptions of machines for working in wood or iron. Address CHARLES H. SMITH, Machinery Depot, No. 135 North Third st., Philadelphia. 32 6*

CHILLED ROLLS FOR ROLLING METALS, Paper, and India Rubber.—The undersigned having been engaged manufacturing these castings for many years, has succeeded in overcoming the difficulties attending the same; and thus reducing the cost, he is enabled to sell them at less prices than heretofore. A copy of the catalogue of his gearing patterns (upwards of 1800, and roll chills (about 100) will be sent by mail to any party desiring it.
FRANKLIN TOWNSEND,
Townsend's Furnace and Machine Shop,
33 4* Albany, N. Y.

WARTH'S SELF-ACTING WOOD-TURNING LATHES.—The best and most practical now in use; one boy will accomplish the work of four men. State and County rights for sale. Address A. WARTH, care W. H. Bertling, 23 Chambers st., New York, or the manufacturers, who have machines of all sizes on hand. Also a general assortment of machinists' tools. Circulars sent. Address CARPENTER & PLASS, 479 First ave., New York. 33 4*

WOODWORTH PLANING MACHINES.—Sash, Tenoning and Mortising Machines, Steam Engines, Slide Lathes, Drills, &c., at greatly reduced prices. Address CHARLES H. SMITH, 135 North Third street, Philadelphia. 32 6*

FOR SALE—A STEAM-ENGINE, 60-HORSE power, with return flue boiler of 100-horse power. Were built to order, and are nearly new. Will be sold cheap. Inquire of NEWTON ADAMS, Lansingburg, N. Y. 32 5*

WELLS' PATENT IMPROVED CIRCUlar Saw Mills, acknowledged the best in use. Also, Portable and Stationary Steam-Engines of superior excellence; Water Wheels, Mill Gearing, &c. Address H. WELLS & CO., at their old stand, Florence, Hampshire county, Mass. 35 6*

AGENTS WANTED—BUSINESS SUCCESSFUL.—Also, a good fly-press for sale. Address J. C. DICKINSON, Hudson, Mich. 35 2*

HARRISON'S 20 AND 30 INCH GRAIN Mills constantly on hand. Address New Haven Manufacturing Co., New Haven, Conn. 27 13

A SUCCESSFUL, DURABLE AND ECONOMICAL ROTARY ENGINE.—The Holly Patent Rotary Engine and Rotary Pump have now become well-known, and are in use for a variety of purposes in almost every State in the Union. They are regarded by engineers and practical men to be among the most valuable improvements of the age. The patents has now run a little over four years, and has gained for itself a reputation unprecedented in the history of any patented article. The subscriber will dispose of exclusive State rights either to vend or to manufacture and vend the same. Full descriptions of the improvements, with certificates, &c., and any further information, can be obtained by addressing H. C. SILSBY, Seneca Falls, N. Y., who is also sole owner of the Holly Patent Turbine Water-wheel (the cheapest and best turbine wheel in use), rights of which are offered as above. 34 4tc

NEW PROCESS.—PHOTOGRAPHING ON WOOD, AND ENGRAVING THEREFROM.—Great improvement in wood-cut illustration, by which pictures can be magnified or contracted with perfect accuracy and less expense than by the old tedious method of hand-drawing. Likenesses, landscapes, dwellings, or any manufactured article, taken from the originals, from daguerreotype or other picture representations. WATERS & TILTON, Photographers and Engravers, 90 Fulton street, New York. 34 3t*

SUPERHEATED STEAM WITHOUT PRESsure dries green lumber in twelve to thirty hours; grain and meal for two cents a barrel; bakes bread and meat, and is the fire-proof furnace for warming buildings healthfully. Circulars free. Rights low.
35 2* H. G. BULKLEY, Kalamazoo, Mich.

CORLISS' PATENT STEAM ENGINES—On application, pamphlets will be sent by mail containing statements from responsible manufacturing companies where these engines have been furnished, for the saving of fuel, in periods varying from 2½ to 6 years. (The "James' Steam Mills," Newburyport, Mass., paid $19,734 22, as the amount saved in fuel during five years. The cash price for the new engine and boilers was but $10,500.) These engines give a perfectly uniform motion under all possible variations of resistance. Two hundred and fifty, varying from about 20 to 500-horse power, are now in operation. Boilers, shafting, and gearing.
CORLISS STEAM ENGINE CO.,
15 26* Providence, R. I.

BOILER FLUES FROM 1 ¼ INCH TO SEVEN inches outside diameter, cut to any length desired, promptly furnished by JAMES O. MORSE & CO., 76 John st., New York. 31 13

OIL! OIL! OIL!—FOR RAILROADS, STEAMERS, and for machinery and burning. Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer, F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 27 13

STEAM ENGINES, STEAM BOILERS, Steam Pumps, Saw and Grist Mills, Marble Mills, Rice Mills, Quartz Mills for gold quartz, Sugar Mills, Water Wheels, Shafting and Pulleys. The largest assortment of the above in the country, kept constantly on hand by WM. BURDON, 102 Front street, Brooklyn, N. Y. 27 tf

MACHINE BELTING, STEAM PACKING, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat. The hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions, prices, &c., can be obtained by mail or otherwise, at our warehouse. NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer, Nos. 37 and 38 Park Row, New York. 27 13

THE AUBIN VILLAGE GAS-WORKS WERE erected last year by one city and several village companies to their entire satisfaction. Towns having only fifty consumers of gas can rely on the stock-paying dividends; and if one hundred, 10 per cent will be guaranteed. For references, apply to the Company, No. 44 State street, Albany, N. Y. 28 tf

CARY'S CELEBRATED DIRECT ACTING Self-Adjusting Rotary Force Pump, unequalled in the world for the purpose of raising and forcing water, or any other fluid. Manufactured and sold by
CARY & BRAINARD, Brockport, N. Y.
Also for sale by J. C. CARY, 240 Broadway, New York City. 24 13t

FELT FOR STEAM BOILERS, PIPES, ship sheathing, marble-polishers, jewellers, and calico printers' use, manufactured by JOHN H. BACON, Winchester, Mass. 31 26*

IRON PLANERS AND ENGINE LATHES of all sizes, also Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address "New Haven Manufacturing Co., New Haven, Conn." 27 13

HOYT BROTHERS, MANUFACTURERS OF patent-stretched, patent-riveted, patent-jointed, Oak-Leather Belting; Store, 28 and 30 Spruce street. Manufactory, 210, 212, 214 and 216 Eldridge st., New York. A "Treatise on Machinery Belting" is furnished on application, by mail or otherwise—gratis. 29 12*

CALIFORNIA AGENCY FOR PATENTS—WETHERED & TIFFANY, San Francisco, will attend to the sale of patent rights for the Pacific coast. References :—Messrs. Tiffany & Co., New York; Wethered, Brothers, Baltimore; George W. Bond & Co., Boston. 23 13*

LARD OIL MANUFACTURERS—MESSRS. WM. SKENE & CO. manufacture purified Lard Oil of the best quality, for machinery or burning, in Bullett st., four doors below Main, Louisville, Ky. 25tf

BUTCHER'S IMPERIAL CAST STEEL FILES—The subscribers keep constantly on hand a very large assortment of the above celebrated files, which are acknowledged to be unequaled in quality, and to which the attention of railroad companies, engineers, and machinists is invited.
BARTON & SCOTT,
25 26 No. 18 Cliff st., New York.

SECOND-HAND MACHINERY AT VERY low prices for cash.—Steam-Engines, Slide Lathes, Planing Machines, Drills, Slotting Machines, &c.; also a variety of Mortising, Tenoning, and Sash Machines, &c., all warranted in good running order. Address CHARLES G. WILLCOX, 135 North Third st., Philadelphia, Pa. 32 6*

REYNOLDS' CONCENTRAL PRESSURE Water-Wheel—Patented March 24, 1857. Adopted by the Hydraulic Canal Company at Oswego as their standard for high per centage of effect, combined with the utmost economy in the use of water. It is simple in construction, therefore cheap and durable. Send for a pamphlet, containing particulars, testimonials, &c., which will be sent free to any address by
32 5t* TALLCOT & UNDERHILL, Oswego, N. Y.

HYDRAULIC JACKS OF 15, 20, AND 25 Tuns power—Prices, $100, $115 and $130 each. Hydraulic Presses of 15 tuns power, price $150. For sale by JAMES O. MORSE & CO., 76 John and 29, 31 and 33 Platt sts., New York. 25 3mos*

A MESSIEURS LES INVENTEURS—Avis Important.—Les inventeurs non familiers avec la langue Anglaise, et qui prefereraient nous communiquer leurs inventions en Francais, peuvent nous addresser dans leur langue natale. Envoyez nous un dessin et une description concise pour notre examen. Toutes communications seront recues en confidence.
MUNN & CO. Scientific American Office, 37 Park Row, New York.

Zur Beachtung für Erfinder.

Erfinder, welche nicht mit der englischen Sprache bekannt sind, können ihre Mittheilungen in der deutschen Sprache machen. Skizzen von Erfindungen mit kurzen, deutlich geschriebenen Beschreibungen beliebe man zu addressiren an
Munn & Co.,
37 Park Row, New-York.
Auf der Office wird deutsch gesprochen.

© 1859 SCIENTIFIC AMERICAN, INC.

Science and Art.

Advice About Teeth.

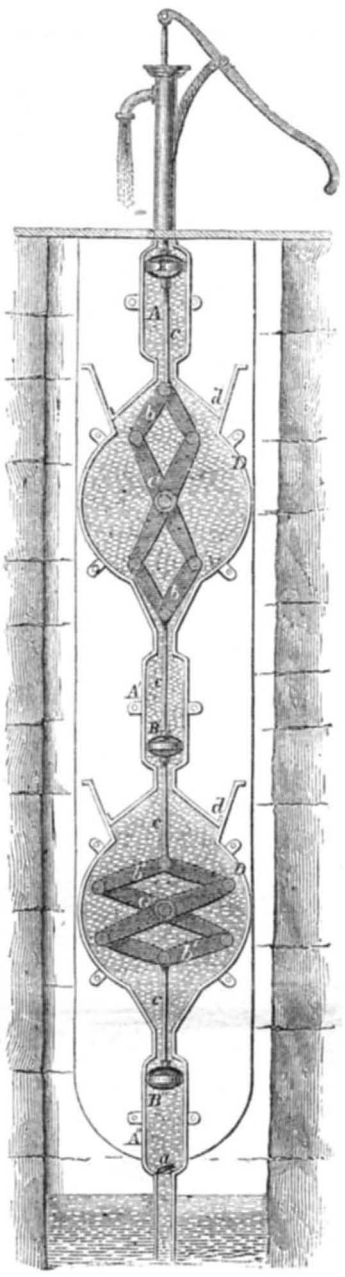
Dr. Hayes, an eminent surgeon-dentist residing in London, gives the following useful hints about the care of the teeth They are simple, timely, and deserve attention :—

"In the first place, the teeth should be fairly used. By this I mean, not made to perform the duties of crackers for nuts, experimented on to ascertain their strength, or by ladies to rival scissors in cutting thread ; for rest assured— in every case, more particularly the last—the party having recourse to such practices will surely some day rue them ; the teeth so unwittingly injured being always the first to part company from their fellows. Those who indulge in such or similar habits may truly be called the dentist's friends. Cleanliness is absolutely essential for the preservation of the teeth, and they should be well brushed at least morning and evening, that any feculence which may be attached to them, either during sleep from the stomach, or by day from meals, may not be allowed permanently to adhere, causing, firstly, discoloration, then tartar, and subsequently, if I may so express myself, undermining the constitution of one or more, as from their position they may be more or less liable to corrosion. In order that the teeth should look natural—that is, retain their natural color—a dentifrice free from the smallest particle of acid should be used at the matin hour, and the mouth rinsed with tepid water, for extremes of heat and cold are most highly prejudicial not only to their color, but also to their durability ; and I know no method so simple of converting a really useful and ornamental set into one of pain and subsequent extinction, than the use of washing in either one or the other. The person who habituates him or herself, to any extent, to hot soup, tea, or other drinks, assuredly rivals the friend to the dentist just named. Brushes for the teeth should be of medium substance of bristle, and those made on what is called the penetrating principle are best. I would also observe that children at an early age should be instructed in the use of the tooth-brush, and taught the value and importance of the teeth, in order to inculcate habits of cleanliness and a due appreciation of the ornaments of the mouth. A brush properly selected (not too hard) may be used by children of five years of age, every morning ; and by being part and parcel of the general ablution, and thus directing habitual attention to the teeth, a useful and cleanly habit will be engendered which will probably ensure for them proper care through life."

De Yampert's Deep Well Pump.

By this arrangement of deep well pumps, the buckets or pistons are only loaded with half the volume of water at a movement of the brake or handle up or down, thus making the working very easy. The pump rod, *c*, passes through several cylinders, and is in separate pieces, each piece belonging to a cylinder, and being connected together by crossrods, C and C′, moving on a center inside chambers, D, and link rods, *b* and *b′*; the whole pump and chambers should be attached to a timber attached to the sides or top of a well, and the distance between the pump cylinders, A A′ A″, and the chambers, D, may be increased by piping according to the force which is attainable to work the pistons ; our engraving only showing the principle of the invention. The pistons are seen at B B′ B″, and each is provided with a common clack valve ; a valve, *a*, being placed at the bottom of the lower cylinder. From D a sort of dish, *d*, rises at its junction with the cylinder, so that in case of any leak, a water joint is formed which prevents the water passing back into the well.

The operation is very simple. As the upper piston, B, is raised in the cylinder, A, it lifts all the water above it out, at the same time drawing the water in the top chamber, D, after it, and at the same time through the rods, *b* C, depressing the piston, B′, in its cylinder, A′, so that the water can freely follow B. As B′ is depressed, its rod, *c*, compresses the rods, *b′*, and C′, and thus elevates the lower piston, B″, in its cylinder, A″, and as the lower valve, *a*, is opened, and more



water from the well is drawn up. When B is depressed, it passes through the water in A by its clack valve being opened, and compressing the rods, *b* C, elevates the piston, B′, thus bringing up more water, and at the same time the opening of the cross-rods and links, *b′* and C′, depresses the piston, B,″ and the weight of water closes *a*.

These pumps can be arranged for wells of any depth, and may be constructed of wood, with the cross-levers, C and C′, and links, *b b′*, pistons, B B′ B′ , and rods, *c*, of metal, and the cylinders lined with sheet brass, or entirely of metal, as may be desired.

A patent was obtained for this excellent device Sept. 11, 1855, by the inventor, T. J. De Yampert, of Honesdale, Pa., who may be addressed for information concerning rights, &c. ; but for pumps, D. W. Church, of Honesdale, Pa., or Messrs. Downs & Co., Seneca Falls, N. Y., should be written to.

How to Make a Mortar Impervious to Wet.—Provide a square trough, say 8 feet by 4 feet by 1 foot 4 inches : put a quantity of fresh lump lime in ; add water quickly. When the lime is well boiled, having assisted that operation by frequent stirring, add the tar (the heat of the boiling lime melts the tar), stir it well, taking care that every part of the lime is intimately mixed with the tar ; then add sharp sand or crushed clinker, and stir well as before, after which, in about twenty hours, it will be fit for use.

Ivin's Hair-Crimper.

Why all the fashions should be French is a mystery to every one, and can only be accounted for upon the principle that Frenchmen have more taste than other people. This is a statement that we are not quite prepared to grant, and we are happy in being able to present an American invention relating to the decoration of the person. The object that is to be decorated is lovely woman, and the part to be adorned is the head, by dressing her golden or her raven tresses in the style we illustrate, and making her look, as Mr. Guppy would say, "gushing." The style is called crimping, and the manner in which it is performed is as follows :—

A fork, A, Fig. 1, is made by bending a piece of steel or other metal wire at the middle of its length, so that the fork is about four inches long and the prongs from three-eighths to five-eighths of an inch apart. A tress of hair is passed between the prongs of

the fork close to the bend, which is placed close to the head, and the tress is then laced round and between the prongs of the fork in the manner shown in Fig. 1, that is to say, over or under one prong, back between the prongs, and over or under the other and back between. The whole length of the tress may be laced in this way or only such portion as may be desired, after which the clasp, B, Fig. 2, or C, Fig. 3, is put on in such a manner as to clasp the hair in its lips, *a a*. To permit the clasp, B, to be put on, the prongs require to be pressed together to enable them to enter the lips, *a a*, but the clasp, C, by reason of its elastic center, can be stretched to make its lips, *a a*, slip over the prongs.

It was patented last week, and the claim will be found on another page. The inventor is E. Ivins, of 1,528 Frankford avenue, Philadelphia, and he will be happy to supply the crimpers or any further information.

Not Uncommon.

A correspondent, in a letter to us from Wooster, Ohio, says : "I have frequently invented articles, but have always thought them not worth getting patented. A number of them were afterwards invented and patented by other persons, and in more than one instance something handsome was realized." This is but a well-known experience, and furnishes a solution to the practice somewhat common, viz., that whenever an inventor, by patient toil, self-denial, and diligence, brings out a useful invention, there are scores who set up a claim to it, ofttimes with no other foundation for their pretensions than that the idea of such a thing may have once vaguely floated through their brains, but never wrought into tangible shape. Patents are not granted for ideas merely, and the attempts so frequently made to wrest, by legal process, the rights of a patentee of some good improvement by setting up such pretensions merely, are sure to end in disappointment to the second claimant. This experience of our correspondent should be a caution to all, not to procrastinate in bringing forward their inventions.

ENLARGEMENT
OF THE
"SCIENTIFIC AMERICAN."

Volume I., Number 1—New Series.

The Publishers of the Scientific American respectfully announce to their readers and the public generally, that, on the first day of July *next* (1859), their journal will be enlarged and otherwise greatly improved ; and at that time will be commenced "Volume I., No. 1, New Series," which will afford a more suitable opportunity for the commencement of new subscriptions than is likely to occur again for many years.

The form of the journal will be somewhat changed from what it now is, so as to render it better adapted for binding and preservation ; and instead of eight pages in each number as now, there will be *sixteen* and in a completed yearly volume the number of pages will be doubled to 832, or 416 more than now. By this change, also, there will be a large increase in the quantity of the reading matter : and it is the confident expectation of the publishers that they will be able to make it the most useful and instructive journal now issued from the American press.

The Scientific American is no new enterprise. Its character and influence have been acknowledged and felt for nearly fourteen years past. It is the only journal of the kind in the United States which has met with success ; and since its commencement, no less than fifteen similar journals have been started, and have expired after a brief and unhealthy career. The Scientific American is published at a price which places it within the reach of all ; and as a work of reference for the Workshop, Manufactory, Farm, and Household no other journal exceeds or even equals it in the value and utility of its information. Its practical recipes alone oft-times repay the subscription price ten-fold. The Inventor will find it, as heretofore, the mirror of the Patent Office, and the reliable record of every claim issued weekly by the Office, the list being officially reported for its columns. The Machinist, the Manufacturer, the Farmer, the Planter the Engineer, the Architect, the Millwright, the Chemist—in fact, all who take the slightest interest in the development and progress of art, science and industry, will find its pages useful and instructive. With the enlargement of the Scientific American, we shall be enabled to widen the sphere of our operations, and it is our intention to devote space to a Price Current, and a column or two to the Metal and Lumber markets, and such other branches of trade as may be interesting, and these will be given as often as we may think it useful to our readers.

The value of the Scientific American as a work of reference is shown by the large number of volumes yearly bound by subscribers ; and there is now a constant demand for all the back volumes which it is impossible for us to supply. Large sums have been offered for the complete work.

The increased outlay to carry out our design of enlargement will amount to eight thousand dollars a year on our present edition ; and in view of this we appeal to our readers and friends to take hold and aid in extending our circulation. Think of getting, at our most liberal club rates, a yearly volume containing about 600 original engravings and 832 pages of useful reading matter, for less than three cents a week! Who can afford to be without it at even ten times this sum?

Two Volumes will be issued each year ; but there will be NO CHANGE IN THE TERMS OF SUBSCRIPTION, as the two yearly volumes together will be Two Dollars a Year, or One Dollar for Six Months.

CLUB RATES.

Five Copies, for Six Months.....$4
Ten Copies, for Six Months.....$8
Ten Copies, for Twelve Months.....$15
Fifteen Copies, for Twelve Months.....$22
Twenty Copies, for Twelve Months.....$28

Southern, Western and Canadian money or Post-office stamps, taken at par for subscriptions. Canadian subscribers will please to remit tweny-six cents extra on each year's subscription, to pre-pay postage.

For all clubs of Twenty and over, the yearly subscription is only $1 40. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

When you order the Scientific American, be careful to give the name of the Post-office, County, and State to which you wish the paper sent. And when you change your residence, and desire your paper changed accordingly, state the name of the Post-office where you have been receiving it, and that where you wish it sent in future.

MUNN & CO., Publishers and Patent Agents,
No. 37 Park-row, New York.

© 1859 SCIENTIFIC AMERICAN, INC.